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# China Report

AGRICULTURE

No. 213

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1 July 1982

# CHINA REPORT

## AGRICULTURE

No. 213

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## I. GENERAL INFORMATION

### SYMPOSIUM ON GRAIN DRYING TECHNIQUES HELD

Beijing NONGYE JIXIE [FARM MACHINERY] in Chinese No 1, 1982 p 28

[Article: "National Symposium on Grain Drying Techniques Held in Yongchuan"]

[Text] The National Symposium on Grain Drying Techniques sponsored by the Special Committee on Harvest Processing Machinery of the Chinese Farm Machinery Society was held 1 to 5 December 1981 in Yongchuan County, Sichuan Province. The meeting discussed the direction and the road of development of our nation's drying techniques, energy needed for drying, drying techniques, and the study of structural parameters of machinery parts.

According to statistics compiled by the Ministry of Agriculture, in ordinary years, several billion jin of grains are damaged by mildew caused by rain throughout the nation. In serious years, more than 10 billion jin are damaged a year. Overcast and rain occur frequently during the harvesting seasons in the south. The monthly average duration of rainfall in some localities is more than 20 days. The relative humidity is above 80 percent, and the temperature rises to 27-28 degrees centigrade. Loss of food grains due to mildew is high. The meeting expressed the view that the southern provinces should popularize key regions of grain drying machinery. The northern regions can also correspondingly develop grain drying techniques by suiting measures to local circumstances based on economic conditions and the climate of local farm villages. The Northeast is the major commercial food grain base. Grains are gathered on the drying fields in a concentrated manner during the harvesting season. Manual turning and drying require 50 to 60 percent of the labor force. Equipment for preliminary selection of grains and drying and partial storage facilities are urgently needed. It is suggested that research and development of complete sets of food grains processing facilities (including dryers) by state-run farms be included as a key national project.

It was the view of the meeting that the small flat-bed type dryer, the simple storage type dryer and the fluidized-bed type dryer should be the main models for popularization. Rich communes and brigades can gradually popularize some cyclic type dryers that are structurally advanced and that have a better performance.

As regards the problem of energy for drying, the meeting considered that the state should appropriately provide oil fuel for commercial food grain bases

and seed supply stations to guard against disasters and protect food grains, assure bumper yields and bumper harvest. In the broad number of villages, coal should be the main source of energy at present, and measures should be suited to local circumstances to develop dryers that use solar energy, small hydroelectric power, marsh gas and residual grain materials such as stalks and husks as fuel. The localities have commented that the supply channel for energy needed for drying at present is blocked and that concerned departments should urgently study the problem and solve it.

At the meeting, many beneficial opinions and suggestions were offered , hasten future development of the grain drying machinery industry in our nation.

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CSO: 4007/267

NEW PROBLEMS FACING PRODUCTION RESPONSIBILITY SYSTEM NOTED

Beijing GONGSHE CAIWU [COMMUNE FINANCIAL AFFAIRS] in Chinese No 3, 1982  
pp 15-16

[Article by Shi Ronghua [4258 2837 5428], secretary of Rangya County CCP Committee, Hubei Province: "Give Attention to the Study and Solution of New Problems in Production Responsibility Systems"]

[Text] Right now communes and production brigades are discussing and setting up 1982 production responsibility systems and signing contracts. All levels of leadership cadres should probe the realities and give attention to the study and solution of new problems regarding responsibility systems.

1. Production levels must not be set too low. The level at which production standards are set not only bears on the amount of real benefits the masses receive, but also has ramifications for the welfare of the state and the collective. Guided by "the principle that the masses should be allowed to exceed production when setting output quotas," some production quotas set by production team cadres are not only lower than output during the past several years, but even state quotas cannot be fulfilled. Though accounting is done in some cases on the basis of average output for the last 3 years, since 2 of the past 3 years were years of diminished output, the production levels set are still less than for normal year harvests. In some cases, last year's actual output exceeded the originally prescribed output, but disasters were offered as an excuse for a general decline in output. In some places a situation has cropped up in which "anything more belongs to oneself with no fulfillment of state quotas and with nothing for the collective." Just where should output be set? First of all, we must rectify our thinking, define what it is that arouses enthusiasm, rely on policies confidently, and allow the masses to have genuine economic benefits. But one positively cannot suppose that allowing commune members to exceed quotas by a large amount is the only way that their enthusiasm will be great, that if they overfulfill quotas by just a little that their enthusiasm will be small, or that if they do not overfulfill them at all they will have no enthusiasm. Standards for setting output must be based on comparison with increases in output during normal years, and have as a prerequisite assured fulfillment and overfulfillment of state quotas if the enthusiasm of the masses is to be genuinely aroused, production potential tapped, a great contribution made to the state, and commune members are to be able to exceed output quotas.

2. Grain provided by the state at parity price must not be consumed while farm products are sold at high prices. This problem is a relatively conspicuous one in places where land is scarce relative to the work force and where grain output has fallen as a result of disasters. With the establishment of responsibility systems linked to output, farm products are in the hands of commune members. In addition, under prevailing policies there are two markets and several prices for these goods. So, some commune members take farm products to markets or outside their locale to sell them for high prices, while state procurement quotas remain unfulfilled. Second, some commune members do not plant according to plan. They expand the growing of economic crops and cut back on the grain growing area, so grain procurement quotas are not fulfilled and the state is relied on to provide grain for consumption. Moreover, when quotas originally set for economic crops are small and actual output large, they sell a large portion in the market, keeping the money obtained for themselves. In addition to readjusting policies and making regulations more restrictive to counter this problem, cadres and the masses must be indoctrinated in establishing a patriotic sense and properly handling the relationship among the state, the collective, and the individual regarding benefits.

3. Procurement quotas must not be set for major farm products alone. As a result of the establishment of production responsibility systems, new changes have taken place in state purchase quotas. Formerly, for example, all quotas were set for production teams, but now product procurement quotas are levied on households. Formerly, grain and edible oil quotas stipulated only the quantity, with no breakdown by variety. Formerly there were only quotas for grain, cotton, and edible oil, and not for other economic crops. Consequently, all quotas must be readjusted and made specific. Unless this is done, problems will occur. For example, if there is only a general quota for grain while soybeans and mung beans command a high price in the market, some households will not sell soybeans or mung beans to the state but rather will fill their quotas with coarse food grains [e.g. corn, sorghum, and millet]. They will satisfy edible oil quotas by supplying rapeseed oil and cottonseed oil while keeping sesame oil for their own consumption or for sale at a high price. Once grain, cotton, and edible oil quotas have been fulfilled, items such as tobacco and peanuts, for which there are no quotas, will be sold at high prices. Therefore, to assure planting in accordance with state plans, all types of farm products should not only be assigned a procurement quota, but fixed quantity quotas for procurement at negotiated prices should also be set. Not only should quotas be placed on production teams but also on households. Not only should quotas assigned commune members by production teams be assured of fulfillment, but also overfulfillment by specific amounts, and contracts should be signed.

4. There must not be one-sided emphasis on letting commune members derive more real benefits and an abandonment of collective welfare endeavors. Following the establishment of production responsibility systems, in some places a situation has arisen in which "everyone did his own thing," and the collective was left without either money or grain. In many brigades, cooperative medical clinics closed their doors for lack of money to support them, and commune members went to hospitals to have their illnesses tended to.



Hardships difficult of solution occurred for the households enjoying the five guarantees and for hardship households. There was no grain or allowances for those who carried out construction, so it was difficult to find workers to send to perform tasks. Consequently, after establishing systems of responsibility linked to output, there must be no "dividing up until everything is gone or eating until everything is gone." The collective must withhold a certain proportion of public welfare funds in order to improve the material and cultural life of the people and to improve health standards.

5. There must be no linking of output to land or disbandment of collective industrial sideline occupations. Before the establishment of responsibility systems, many production teams had industrial sideline occupations, but following the establishment of responsibility systems for agricultural production, many production teams had no means of engaging in industrial sideline occupations for the following reasons: 1) management levels were low and income from some sideline occupations small, so they simply stopped working; 2) soil output was set too low, permitting production in excess of quotas, while sideline occupations provided no assurance of increased earnings, so those engaged in sideline occupations simply quit; 3) it was mistakenly believed that linking income to production meant a division of the fields for working individually and it was feared that no land would be available in future for those engaged in sideline occupations; 4) in places with little land relative to the work force, some commune members spent time on sideline occupations for which they were not accountable, pocketing the money they earned; in consequence, many of the processing plants, transportation teams, construction teams, carpentry teams, plaiting teams, hog raising teams, beekeeping teams, and such sideline occupations that the collective had formerly organized had no one to work them, and collective income greatly decreased as a result. In light of these attitudes and realities, policies must be made clear to cadres and the masses. Where management is poor, it must be strengthened. Where occupations can be carried on jointly by the collective and individuals, the collective and individuals should work together. For both agriculture and sideline occupations, output quotas should be equitably fixed and remuneration should be generally balanced. Specialized teams and specialized households can be established for industrial sideline occupations. In summary, where conditions permit, not only should collective industrial sideline occupations be consolidated but they should be steadily developed in order to find opportunities for surplus rural labor and to increase earnings for the collective.

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RESULTS OF SCIENTIFIC FARMING EXPERIMENTS IN FIVE COUNTIES REPORTED

Beijing NONGYE JINGJI WENTI in Chinese No 2, 1982 pp 35-37

[Article by Chen Lin [7115 2621], Hao Qi [6787 3825], and Xu Xin [6079 6580], Agricultural Modernization Research Committee, Chinese Academy of Sciences, "How Five Agricultural Modernization Bases Launched Scientific Experiments"]

The Chinese Academy of Sciences and provinces concerned established at Taoyuan, Luancheng, Hailun, Yanchi, and Guyuan five agricultural modernization comprehensive research base counties for research and applied science and technology to hasten development of agricultural production. A brief summary of several understandings gained from the conduct of scientific experiments during the past several years are provided below.

Beginning With Reform of the Crop Growing System For Gradual Revival and Building of an Equitable Agricultural Ecological System.

In the several base counties as in the country at large, a single product economy over a long period of time has created proportional imbalance in the internal structure of agriculture; the ecology has lost its equilibrium; and agricultural production has developed slowly. Changing this state of affairs to convert the vicious cycle in agriculture into a benevolent cycle requires a process and performance of a large amount of research.

By way of solving this problem, several base counties began with readjustment of crop patterns and restructuring of the farming system. For example in Hailun County from south to north there is an accumulated temperature difference of almost 300°C and a more than 100 millimeter difference in quantity of rainfall, so they readjusted crop patterns on the basis of accumulated temperature and accumulated water belts. In the north and northeastern areas, rainfall is fairly great and soil moisture conditions are rather good. The frost-free period is comparatively short too, so these areas were designated bean and wheat producing areas. Southern and southwestern portions where, spring drought occurs in many years and where accumulated temperatures are high were designated corn growing areas. In 1979 when only a portion of the corn growing area of the northeast was transferred to the southwest, and when only a portion of the wheat and bean growing area was transferred from the southwest to the northeast, grain yields increased by 14 million jin.



Taoyuan County is a transitional region between the central semi-tropical belt and the southern semi-tropical belt where natural conditions are complex. Formerly two crops of rice were promoted here with "arbitrary uniformity" in contravention of objective laws. This artificially intensified the labor shortage for the "three summer jobs" [planting, harvesting, and field care], and a large part of the workforce was shackled to paddyfields that accounted for only about 10 percent of the county's fields. The abundant natural resources could not achieve development and utilization, and for a long period of time no development of economic diversification could begin. The Changsha Agricultural Modernization Institute converted to the growing of a single rice crop one-third of the Guanshanling Brigade's wetlands that should not grow two rice crops. This emancipated workforces, changing the ratio of the workforce engaged in agriculture and in economic diversification from 8:2 to 5:5, economic diversification thereby attaining rapid development. The result of the experiment was that grain output increased 16.8 percent; costs dropped 13.8 percent; and average per capita income increased by 33.30 yuan. The results of their research spread without having been given any publicity, and by 1981 77 production brigades followed them to do the same thing.

Through the introduction of early ripening fine corn variety, "Jingzao No 7," Luancheng County also solved problems with machine planting. A farming system of flat seeding [as opposed to sowing in raised rows or beds] of wheat and corn as two separate crops was universally promoted in production. In 1980, despite severe disasters, yields rose from 300 to 400 jin in ordinary years to 614 jin per mu, a 21 percent yield increase. This reversed a situation that had endured for many years of "summer high and autumn low." During the past year or two, intercropping of corn with pulse crops has further improved this farming system.

In restructuring the farming system and readjusting crop patterns in order to establish an equitable agricultural ecological system, the vicious cycle in agriculture thereby becoming a benevolent cycle, these three base counties have taken a heartening step.

While studying and restructuring the farming system, the three base counties of Hailun, Taoyuan, and Luancheng selected a number of production brigades for study of the optimum structural proportions of farming, forestry, livestock raising, sideline occupations, and fisheries in terms of distribution of workforces, rational utilization of resources, transformation of energy and resources, and increasing earnings from sideline occupations. For many years Taoyuan County has used rice straw for livestock feed. While studying the benevolent cycle system in large scale agriculture, fields dependent on rainfall and where harvests are very low) were converted to the growing of hybrid corn. Test planting of a single crop of early corn on these lands in 1980 produced yields of about 600 jin per mu. In 1981, late crop corn yields amounted to from 300 to 400 jin per mu or almost 1,000 jin for two crops. This was between one and two times as much as from the growing of paddy rice. Use of fields dependent on rainfall for the growing of corn not only solved the problem of fodder for poultry and livestock, but also solved the contradiction of competition for water between paddyfields and ponds.

The Hubei Aquatic Products Institute conducted experiments with the raising of fish in paddyfields at Taoyuan. They used a method of digging pits in paddyfields to solve contradictions between shallow watering, frequent watering, sunning the fields, and the raising of fish, obtaining very good results. Net income per mu from fry was about 15 yuan. After fish were raised in the paddyfields, virtually all of the weeds in the fields were eaten by the small fish; major soil nutrients increased; and paddy yields increased 15 percent. Net income from fields in which fry were raised increased 46 percent. Taoyuan is preparing further to combine paddyfield and pond raising of fish, and reservoir and river raising of fish, to form a freshwater breeding system.

These experiments brought about changes in the existing structure and performance of the ecological system, accelerated the material cycle, and heightened the energy transformation rate.

#### Attention to Key Techniques and Organization of Comprehensive Scientific Experiments

Limiting factors impairing production existed in the agricultural production of all base counties. In Taoyuan County, for example, the protracted drowning of paddyfields has given rise to secondary gleying of the soil. The gleying area accounts for about 40 percent of the paddyfield area. In the management of its crops, Luancheng County has violated objective laws using large amounts of water, fertilizer and seeds so that output is not worth the costs, production expenses per mu amounting to 40 percent or more. In Yanchi County quality of flatland sheep had dropped and the rate of removal from inventory was low. In focusing on these problems, many specialties and many disciplines were organized for comprehensive experiments and large scale cooperation that transcended departments. Results of research on individual facets was organized into a coherent whole and converted into techniques that could be applied. This produced outstanding results and greatly accelerated the process of converting research results into productivity. For example, application of a number of principles and methods of genetics to figure out the interrelationship between the number of twists in flatland sheep wool spikelets and other properties and generic capabilities in order to set criteria for breeding of fine varieties and selecting the finest of the fine, thereby rapidly upgrading the inherent fine traits of flatland sheep. Production units set up an associated artificial insemination station, which increased the breeding rate for rams from the natural breeding rate of five to 10 to more than 200 ewes. At the same time they vigorously culled out rams, weak sheep, and inferior sheep from the flocks, the structure of the flocks becoming more rational thereby. Within a period of 2 years, the size of flocks has increased eight percent, and income from livestock products has increased 61 percent. No more than 2 to 3 years were required from research to application to production. Such speed is rare in agricultural research.

Taoyuan County's experiments with changing the secondary gleying of paddyfields was done by improving paddyfield water conservancy facilities, rotating between wetland and dryland crops, lowering the ground water table,

improving the physical and chemical structure of the soil, and decreasing toxic reduction materials. After the soil had been improved, springtime mud temperatures rose to 1 to 2°C, and injurious reduction materials declined; effective potassium increased 0.5 mg/100 grams of soil; effective phosphorous increased by 0.69 mg/100 grams of soil, and soil pH rose from 4.32 to 5.61. In the same year paddy yields increased by 100 to 200 jin per mu.

As the role of science and technology in economic construction continuously expended, developmental research to promote new techniques and new materials received serious attention universally within the country. Development research is a bridge whereby science and technology is transformed into productivity to become more important in agriculture. This is for the following reasons:

First, results of agricultural research, and particularly results of individual technologies are obtained in the non-productive conditions of laboratories or small area experiments. Their application to production will additionally require a research process whereby they are paired with and adapted to other technologies.

Second, before research results can be applied to production, intermediate experiments are performed in industry while this stage is a void in agriculture.

Agricultural modernization experimental basis can use the method of "take-ism," comprehensively applying existing research results to launch research to fill in gaps to complete a chain, using it as one's own point of departure for research. First comes copying, followed by innovation with innovation coming in the course of use, and technical and theoretical development taking place on a higher plain from a foundation of solving real problems in production.

Use of Technology Requiring Small Investment That Shows Quick Results and Great Benefits With Research Placed in an Important Position

Judging research results requires, first of all, a look at its direct economic benefits for production or its anticipated results in spurring economic development. Because China's agricultural techniques and equipment are relatively poor, and peasant cultural levels and knowledge of science and technology relatively low, in order to realize increased output over large areas technology that requires little investment, brings quick results, and is simple and readily usable is all the more necessary. In our experiments at base counties, this kind of research was put in a priority position.

Yanchi and Guyuan counties are windblown and arid areas where evaporation exceeds rainfall, water becoming a limiting factor on agricultural development. For these counties to resort to construction of water conservancy as other places do to solve the problem of irrigating fields is clearly difficult. Consequently, how to conserve natural rainfall becomes a major research problem. The Desert Institute of the Chinese Academy of Sciences worked from analysis and mystery of the laws governing local rainfall and

their relationship to crop growth and development. Before the advent of the rainy season, they loosened the soil deeply but did no further plowing of it. This is called the deep loosening method or little cultivation method, and, as compared with traditional farming methods, it greatly increases soil capacity to take in and store moisture. Between 0 and 50 centimeters down, soil water content is increased 13.2 percent between 30 and 50 centimeters water content is increased 47.7 percent. Broom millet output increased 13.4 percent, and millet output increased 31.9 percent. Since this method does not disturb the surface horizon of the soil, a substantial amount of crop stalks and other leavings can be retained; these reduce soil evaporation and erosion. Since this technique is uncomplicated and easy to apply, while the experiments were going on nearby peasants wanted to use it. Decision has been made to promote throughout the county the large numbers of armless, deep-loosening farm implements produced by the Yanchi County Farm Implements Plant. Though results of research of this kind have extremely evident economic benefits, some people feel they do not reflect scientific "refinement." These people do not realize that such methods can increase production and are welcomed by the masses.

Luanchen County was a famed cotton producing county before Liberation, but in view of the emphasis given to "early" in the farming season during the past 10 years or more, disease has been serious during the seedling stage, plants have been missing and the soil cracked around plants. Yields fell to 20 or 30 jin per mu. Research has shown that a 15 to 20 day delay in the time of sowing, in accordance with different temperature requirements for cotton seed sprouting and elongation of embryo stems, brought full stands of plants and sturdy stems, providing a fine basis for the 80 jin per mu cotton yields for the county as a whole in 1981.

Fine varieties are also technical measures in the category of requiring little investment, bringing quick results, and providing great benefits. Several base counties rather diligently set about purification and rejuvenation of varieties, and perfected fine variety propagation systems from which results have begun to be obtained. Nevertheless, the potential has not yet been very well exploited, and work requires further strengthening.

The aforementioned research work has not been seriously viewed for a long time, and at times it has been derided as the work of "evil people." The researchers engaged in this kind of research work received no support or were even looked down upon. I feel this situation is related to the country's policies toward science. Formerly we evaluated and rewarded research results in terms of "use." Therefore, henceforth we should change this state of affairs through policies toward science and management of research so that science and technology will play a role in the advancement of agricultural production.

Development of Industry That Can Be Used By Agriculture Locally to Solve the Problems of Technical Change of Matters in Nature

Quite a few research results need to be turned into products or necessary material conditions for their application provided before they can be applied



to production. This is because research results generally are things that belong to the category of an intellectual formulation that cannot be directly applied to production. An example is full rate livestock feed and compound fertilizer, the nutrients in which are abundant, which are proportionally balanced, are of high efficiency, and which have been generally applied abroad with success. In recent years research in their use in some parts of China has brought fine results. However, unless a modern livestock feed and compound fertilizer industry is built, and problems in the socialization of the supply of products solved, advanced technology cannot be translated into productivity.

Solution to problems of technical change of matters in nature and development of agricultural industries requires overall planning by the state. Insofar as its strength allowed, Luanchen County established livestock feed processing plants and studied three formulas for production of hog feed. After these feeds were used the pork to feed ratio declined from 1:5-6 to 1:3.8, the return on feed increasing by 30 percent or more.

The Ministry of Chemical Industries conducted compound fertilizer experiments at Luancheng and prepared to convert small chemical fertilizer plants to compound fertilizer plants. At first they experimented with compound nitrogenous and phosphate fertilizer gaining yield increases of about 15 percent as compared with use of the same quantity of nitrogenous or phosphate fertilizer.

During the past 3 years, several base counties have launched experiments in the application of the results of a hundred or so large and small research projects, all of which have resulted in yield increases to varying degrees. However, some results have been taken up for use and others have not. The reasons for this, apart from inadequacies in the techniques themselves, that they are not key measures for increasing yields, and that the masses find them a bother to use, lies in problems the technical change of substance. Therefore, development of agricultural industries and building of a modern industrial base to render service to agriculture are indispensable material conditions for hastening the application to production of the results of scientific research.

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# USE OF PLASTIC SHEET MULCHING FOR UPLAND RICE EXPLAINED

Beijing ZHONGGUO NONGMIN BAO in Chinese 8 Apr 82 p 4

[Article by Yi Cai [2496 2088] : "Plastic Sheet Mulching for the Growing of Upland Rice"]

[Text] In North China water resources are limited, to the detriment of paddy rice production. The use of plastic sheet mulching to grow upland rice is a new means of saving water in growing rice. Experience has shown the actual need for water of paddy rice to be somewhat less than for upland rice. Paddy rice can grow normally in a comparatively fertile cultivated layer using plastic sheet mulching where the soil water content is around 20 percent. Once the plastic sheet has been put down, water in a deep layer of soil has a tendency to move toward the surface layer. This is because moisture evaporated by the sun's rays condenses when it hits the plastic and forms droplets that drip onto the surface of the soil. Plastic sheet mulching also raises the soil temperature. The increase in temperature during May and June is particularly apparent. At a depth of 5 to 10 centimeters in the cultivated layer, the average daily temperature increase is between 1.2 and 3.6 degrees centigrade. Under conditions of high temperature and great humidity, microorganism activity increases, thus promoting the breakdown of soil nutrients, improving the physical properties of the soil in the cultivated layer, and creating a favorable environment for early stage rice growth and development.

When plastic sheet mulching is used for upland rice, either dry seeds may be dibbled into holes or seedlings may be grown for transplanting. Practice has shown that it is easier to get full and even stands of rice from the transplanting of upland propagated rice than from the dibbling of dry seeds, and elimination of weeds during the early stage is also helped. Usually 0.015 millimeter thick transparent plastic sheeting is used as a mulch; holes are punched in it to suit rice planting density, the best hole size being 4 centimeters.

For growing upland rice using plastic sheet mulching, insofar as possible, low-lying easily flooded waterlogged land and flatland that can be easily soaked where wetland and dryland intersect should be selected. Results in the growing of rice using plastic sheet mulching are best in places that are dry in early spring, where water is lacking for the transplanting of rice

seedlings, where the land is prone to waterlogging during the rainy season, and where yields from dryland crops cannot be assured. Fields having overly small amounts of rainfall must have irrigation facilities in order to provide "life-saving water" when needed.

For upland sowing, varieties must be selected that are drought-tolerant, short-stemmed, disease-resistant, lodging-resistant, early maturing, and high yielding. In propagating seedlings for transplanting, local intermediate ripening varieties should be selected. Because rice development is restricted by a shortage of water, ripening will occur later than when grown in paddy fields.

Once the mulch sheet has been put down, it cannot be removed for weeding; therefore, a herbicide should be used to get rid of weeds before the plastic is laid. Between 6 and 8 liang of 50 percent benthocarb or 40 percent nitrofen per mu will effectively eliminate weeds and will be relatively safe for the rice. Herbicide strength must be accurate and spraying must be done evenly. Miaoyan weeds [5379 4190 5430] have to be removed by hand or cleared away with herbicide.

The land must be turned well and raked finely. All stubble and weeds must be cleared away entirely, and the surface of fields or mounds where crops have grown must be rolled flat. The plastic sheeting must be stretched taut, laid flat, and it must hug the surface of the ground; soil must be placed on its edges to hold it down so that the wind cannot lift it and allow soil moisture to escape.

Plants should be 3 cun apart, about 20,000 holes per mu being planted. Six or seven plants should be transplanted into each hole or 10 to 12 seeds planted per hole so as to get about 15 panicles per hole.

For fertilizers, farmyard manure and sufficient phosphate and potash fertilizer should be used, the amount of nitrogenous fertilizer being reduced to about one-third the amount usually used on paddy fields. This fertilizer should be applied over the entire field and worked into the soil before sowing. If fertilizer appears lacking in the later stages, fertilization for heading or grain formation may be carried out. Fertilizer can be applied before rains, or the plastic may be broken and fertilizer dibbled in, or leaf surfaces may be sprayed with fertilizer.

Plowing and ridging should be carried out in early spring to prepare the field plots and advantage should be taken of soil moisture to sow or transplant early. Places having experience in seedling propagation might best propagate sturdy upland seedlings and plant them early at the right time. Where soil moisture conditions are fairly good, survival is possible without flooding the fields, but transplanting should be carried out quickly right after rains. In both early sowing and early transplanting, soil should be used to close planting holes tightly.

## NATIONAL

### NECESSITY FOR MULTIFORMITY OF RESPONSIBILITY SYSTEM EXPLAINED

Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese  
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[Article by Yu Feng [5713 6912] and Chen Wenke [7115 2429 4430] of the Hubei Social Sciences Institute: "A Trial Discussion of the Multiformity of Our Country's Agricultural Production Responsibility System in the Present Stage"]

[Text] Over the past 2 years, various forms of the agricultural production responsibility system, characterized by linking remuneration to output, have been further developed in the vast rural areas of our country. Their speed of development and proliferation have already greatly exceeded people's expectations. People had originally envisaged that three forms of the responsibility system--contracting production to households, assigning output quotas to individual able-bodied laborers, and specialized contracts that link remuneration to output--would respectively suit our country's poor and backward areas, intermediate areas, and advanced areas. However, as things developed in practice, the household contract form developed in the communes and production teams in some advanced areas, while in some poor and backward areas the output remuneration form is vigorously practiced, and even within the same area where the levels of productive force are for the most part identical, the production responsibility system has become the antithesis to the past form of agricultural management and administrative known as "one knife for everything," i.e., rigid uniformity. The production responsibility system is suited to our country's multilevel agricultural productive force as well as to its multilevel management and administration. Its emergence and development was an objective necessity.

#### I. The Multilevel Nature of the Productive Forces Determines the Multiformity of the Responsibility System

Since the beginning of the construction of socialist collective agriculture in our country, production conditions have markedly improved and the production level has been greatly raised--this must be fully affirmed.

1. The degree of simplicity and complexity of production tools varies, as does the level of agricultural machinery. Some production is modernized, mechanized large-scale production, like some people's communes in the suburbs of a small number of large cities; some production is semimechanized, semimanual labor



production, like many communes and production teams in areas such as the southern plain of Jiangsu Province; and some production is completely manual labor production, and there even is still the primitive, backward slash-and-burn cultivation.

2. The cultural levels and the scientific and technological levels of the laborers, as well as their technical ability in production, vary. In some places where elementary school education and junior middle school education are universal, the commune members' level of scientific farming is fairly high, they can fairly well master and use new agricultural technology, and they are good at working on sideline occupations and running a diversified economy. In some places where the majority of the peasants have an educational level of lower primary school and above, but a minority of them are illiterate or semi-illiterate the raising of their level of scientific farming is not fast, their study and mastery of new technology is also limited; and there are still many places where educated people are in the minority and there is a lack of agro-technical talent, which seriously affects the raising of the level of scientific farming and the spread and use of new technology.

3. The labor objectives (including cultivated land, water areas, mountain forests, etc) are intrinsically different and the degree of their exploitation and utilization are different, so the patterns and methods of production are also different. Take cultivated land for example. Not only are plains and lakeside areas different from hills and mountain areas, but the former is concentrated linked strips of land convenient for mechanized work and collective labor, while the latter is fragmentary, scattered pieces of land inconvenient for mechanized work and collective labor; and within plains and lakeside areas, because water power conditions and technical equipment will be different, the degree of the exploitation and utilization of cultivated land will also be different. In some places there will be gravity irrigation or electromechanical irrigation so that all the fields will timely be put under water to protect the harvest, and in still other places the peasants "depend on heaven for their food."

4. The degree of socialization and specialization of production varies. In some places the level of socialized production is quite high and there is a clear division of work and operations, and there has been initially formed a rural economic structure in which agriculture, forestry, animal husbandry, sideline occupations, and fishery are comprehensively developed and in which agriculture, industry, and commerce are comprehensively managed; in some places although the enterprises run by communes and production teams and the diversified economy have been developed, the specialized division of work is not clear and the relations between various departments and various trades are not very close; and in still other places single-crop planning is practiced, socialization and specialization of production is out of the question, the great majority of farmwork is suited to the work of individual laborers, with each household able to finish the entire process of crop production from sowing to harvesting, and thus between the laborers there are still simple work relations.

Since the agricultural productive forms are in this state of being multilevel and unevenly developed, the agricultural production responsibility system, which

is a form of administering and managing a socialized, collective agriculture, must be adapted to these circumstances and take on multiple forms and cannot take as its model the past practice of "one knife for everything." For example, in the place where the three provinces of Hubei, Henan, and Anhui meet, the principal form of the responsibility system practiced by each province form of the responsibility system practiced by each province is different: The Zhangguanghe Commune in Macheng County, Hubei, practices the multiform responsibility system with emphasis on specialized contracts linking remuneration to output; and Henan and Anhui practice the multiform responsibility system with emphasis respectively on assigning output quotas to individual able-bodied laborers and on fixing output quotas based on households which assume full responsibility for task completion. Why is it that, in the same mountainous area where production conditions are approximately the same, the forms of the responsibility system practiced are different? This is because in Zhangguanghe Commune, Macheng County, the development of forestry and other parts of its diversified economy is faster than that of the communes in the neighboring provinces and is at a certain level of specialized production. Not only is this the case in one province, one county, or one commune, but it is also the case in one production brigade or one production team. In the No 8 Team of the Shafan Production Brigade, Huilong Commune, Huanggang County, Hubei, households are small and machines few, so agricultural production depends on the labor of men and animals. Proceeding from the local situation in agriculture production, and according to the different crop situations, they have carried out the multiform responsibility system with emphasis on assigning output quotas for field crops to individual able-bodied laborers: 1) for the summer grain crop (wheat), the form of contracting a job to be done in a certain period of time and of managing by quotas is practiced; for the summer oil crop (rapeseed), the form of 1 person per 1 fen of "edible oil plots" is practiced, i.e., every person tills 1 fen of rapeseed land for which he pays 1.5 yuan of land cost and receives 5 jin of edible oil; 3) for early and late paddy rich on large plots close at hand, the form of assigning output quotas to individual able-bodied laborers is practiced; 4) for early and late paddy rice on small plots far away, the form of contracting production to households is practiced; 5) for cotton, the form of 4 li [1 li = 0.666 square meters] of land per person with the person paying 1 yuan in land cost and retaining for himself 2 jin of cotton is practiced; and 6) with the exception of planted cotton, for 1 mu of dry land and several dozens of paths between fields, the form of contracting production to households, with full awards and compensation, is practiced. Looking at this situation in Huilong Commune, where this team is, and at the situation in Huanggang County, the forms of the multiform responsibility system that are primary are the assigning of output quotas to individual able-bodied laborers and the specialized contracting that links remuneration to output, and there are extremely few teams that practice the forms of quota management and household contract production. If one were to rigidly make this team the model for the whole commune and even the whole county, this would obviously be unworkable. Because in this team the level of mechanized work is low and the fields are relatively scattered, and within the whole commune and the whole country, the level of production forces is fairly high and different levels are formed, and so the forms of the responsibility system are not all identical.

From this one can see that the multilevel development of the productive forces, especially the level of production tools and technical equipment, plays the decisive role in the emergence and development of the different forms of the responsibility system. The productive forces determine the production relations, which mainly means that the forms of the means of labor such as production tools determine the forms of the ownership system and that the level of the technical equipment composed of the means of labor such as production tools determine the form of the organization and management of labor. Just as Marx expounded many times: "The means of production determine the labor organization." ("Complete Works of Marx and Engels," vol 31, p 236) "For the composition and division of labor, we look at the tools possessed for it and their differences. The division of labor determined by manual grinding is different from the division of labor determined by steam-power grinding." ("Complete Works of Marx and Engels," vol 4, p 163)

Of course, it is correct for many articles to cite the abovementioned expositions by Marx when stressing that with the difference in production tools the specific forms of the responsibility system are also not identical. However, we cannot make the decisive role of the difference in production tools absolute, and prove merely from the different levels of the production tools that the emergence of various forms of the responsibility system is an inevitability. Seemingly, the more advanced the production tools the greater the scale of the labor organization, and one can only practice a form of the responsibility system in which there are relatively many components of unified management and administration (like the specialized contracts linking remuneration to output). Conversely, if the production tools are backward the scale of the labor organization will be small, and one can only practice a form of the responsibility system in which the components of unified management and administration are few (like large-scale assignment of responsibilities). This conclusion is open to question. First, the emergence of many forms of labor organizations and of many forms of the responsibility system was the result of many factors and multiple effects. It is true the level of development of the productive forces is a factor that plays a decisive role, but the multilevel productive forces are not to be completely equated with the multilevel production tools. Looking at history we see changing factors affecting production relations (including the forms of management and administration), and these factors are certainly not merely the production tools. Take manual tools for example. Manual tools are used in small-scale production, as they also are in the initial stage of capitalism. The high-level agricultural producers' cooperatives set up in our country after the cooperative transformation of agriculture also used a large amount of manual tools. Next, that the production tools determine the composition and division of the labor organizations does not mean that the level of production is in direct ratio to the size of the labor organization or the number of unified management and administrative components in the responsibility system. Practice proves that following the raising of the level of production tools, the scale of a labor organization can either expand or contract. We must now focus on the following situation that people overlook.

## II. The Multipliformity of the Responsibility System Is Suited to the Level of Multilevel Management

As we stated above, the agriculture production responsibility system with its many forms was the result of many factors and multiple effects. We hold that, in addition to the chief determining factor of the level of development of the productive forces, the other factors should include: the size of the production team, the degree of concentration and dispersion of where the commune members dwell, the laborer's understanding and desires, the level of the cadres' experience and management, etc.

Among them, the level of management and administration is a factor second only in importance to the level of the productive forces. The form of the agricultural responsibility system must be suited to the level of management and administration.

At the present stage in our country, the situation of management and administration in collective agriculture, like the situation in agriculture production, is at a level of development that is uneven and itself multilevel. 1. Looking at the methods of management and administration, we see that, owing to the differences in production tools and technical equipment and to the difference in the scale of production and the degree of production socialization, some methods are suitable for unified management and administration of a collective (like for large farm implements, large and medium-sized water conservancy installations, or enterprises, run by communes or production teams), some methods are suitable for dispersed management and administration (like for small farm implements and small water conservancy installations), and still other methods are suitable for separate household management and administration; some methods are suitable for the practice of the collective responsibility system, some methods are suitable for the practice of the individual responsibility system, and still other methods are suitable for the practice of a combined collective and individual responsibility system. 2. Looking at the capabilities of managers and administrators, we see that, owing to their different levels of education and technology and their different amounts of experience, there are fairly large disparities manifested in management. Some managers and administrators have a certain amount of scientific and technical knowledge and rich practical experience, so that they truly know the ins and outs of their tasks and can manage fairly well the plans, labor force, property, and materials of the people's commune as the basic accounting unit. And there are also some who are fairly lacking in educational knowledge and practical experience and who basically do not know the ins and outs of their managerial and administrative tasks, and thus their management and administration are in a state of confusion. 3. Looking at the characteristics of our country's agricultural production at present, we see that, owing to the fact that in many places the levels of mechanization, water conservation, and technology are fairly low, we must, proceeding from the actual circumstances in which agricultural production has a dispersed nature, seasonal nature, and cyclical length, adopt different labor combinations and management forms. For some characteristics suitable for centralized labor, unified management is practiced. For some characteristics suitable for dispersed labor, a combination of unified management and division work responsibility is practiced. For some characteristics suitable



for individual labor, the individual responsibility system under unified management is practiced. Therefore, no matter whether we proceed from the multi-level productive forces or from the multilevel management and administration, under the premise of upholding the socialist ownership system with the rural people's commune as the basic accounting unit, we must practice many forms of management and administration, including forms of the responsibility system, and we must not rigidly adhere to one centralized, unified form, in order to even better improve the people's relations of cooperation in the course of production, promote the further integration of the laborer with the means of production, and to the greatest extent possible display the superiority of the socialist collective economy and arouse the production enthusiasm of the individual member.

As early as 20 years ago, Comrade Chen Yun pointed out: Under the guidance of state plans, there should be a diversity of forms in management and administration. He said: "We must correct in good time the mistaken course of action in which attention is paid only to centralized production and centralized management, and in which dispersed production and dispersed management is neglected." However, since 1958, what has mainly been practiced in our country's collective leadership is a highly centralized form of administrative management. It is prominently manifested in two aspects: First, the commune, the production brigade and even high-level departments practice highly centralized, unified administrative management over the production team. The commune and the production brigade represent the state's political power and issue mandatory plans to the production team, and impose equalitarian and indiscriminate transfer of the manpower, material resources, and funds of the production team. The production team is the purely economic organization of the kind there was in the period of cooperativization. Second, the production team also exercises highly centralized, unified administrative management over the commune members. The cadres of the production team not only control and manage the whole production of the team, including the planning, management, and harvesting of crops and the team's industrial and sideline production, but also control and manage the management and administrative measures for production and the distribution of income, down to that of the household sideline occupations of commune members. From looking at the above two aspects, we see that not only does this centralized, unified pattern of administrative management limit, with regard to system, the right of production teams and commune members to make their own decisions, but also the work involved in this kind of complicated centralized, unified management makes it hard for the cadres of communes and production teams, particularly the vast numbers of production team cadres, to be equal to their jobs. Precisely because the situation is like this, the great number of cadres and masses have all along demanded that this kind of single administrative management model, which is divorced from reality, be reformed and replaced by multiple forms of management and administration that are in accord with local natural conditions, economic conditions, and cadre management level. Stressing the significance of this, the emergence of multiple forms of the agricultural responsibility system over the past 2 years in our country is precisely a negation of the past pattern in our country of highly centralized and unified administrative management, and is also a product of the contradiction between the multilevel production, multilevel management and administration and the pattern of highly centralized and unified administrative management.

The new situation that has appeared in the development of the agricultural production responsibility system also proves: what kind of responsibility system a place practices cannot be divorced from the management and administrative level of that place. Generally speaking, in communes and production teams where the level of management and administration is high and the cadres' work style is also good, it is easy to practice unified management and the comparatively complicated form of the responsibility system represented by a method of output-linked remuneration (like specialized contracts); conversely, even if the level of productive forces is fairly high, more often than not we should choose unified management and the form of the responsibility system represented by a simple, convenient, and easy to carry out method of output-linked remuneration (like large-scale assignment of responsibilities to each household). In different areas where the level of productive forces is more or less the same, the effect of the level of management and administration on the choice and determination of the form of the responsibility system is even somewhat more obvious. We made a preliminary analysis of the situation of the agricultural production responsibility system in 10 counties of 4 prefectures (municipalities) in Hubei Province, and observed the following situation worthy of attention: 1. In counties and communes where the level of productive forces is comparatively high, because of problems concerning the management and administration level and the cadres' work style, the "double contract" form, i.e., fixing output quotas based on households and peasant households assuming full responsibility for task completion, of the responsibility system is practiced by a comparatively large number of production teams. 2. In counties and communes where the level of productive forces is fairly low, because the cadres possess a certain level of managerial and administrative expertise, the forms of the responsibility system practiced are specialized contracts and the assigning of output quotas to individual able-bodied laborers. 3. In counties and communes where the levels of the productive forces are more or less equal and the levels of management and administration are different, the main forms of the responsibility system practiced by each county and commune are not all the same.

To sum up, the conclusion is extremely clear: the many forms of the agricultural responsibility system are not only first decided by the level of the multilevel productive forces, but at the same time are decided by a given level of the productive forces being suited to the level of the multilevel management and administration. Admittedly, under given conditions the level of management and administration has a certain decisive effect on the form of the responsibility system, and is advantageous for correctly analyzing the conditions and reasons for the emergence and development in our country of the multiform agricultural responsibility system and for finding answers that conform to the actual situation.

As everybody knows, management mainly includes two aspects: 1) regulating the coordination between men and materials (the means of production), and organizing cooperation between man and man in the production process; and 2) regulating the relations between man and man, and managing the system and ideological-political work. We maintain that, with regard to these aspects, management should fall into the category of a productive force, and that not only does the combination of men and materials produce a productive force but also the cooperation of man and man in the production process forms a productive force, a kind

of "collective force." In "Das Kapital," Marx many times employed the concept of "labor's social productive force" or "social labor's productive force," and what he was referring to was precisely the productive force produced from labor's social combinations, viz, coordination. Of course, in comparison with the ordinary meaning of productive force, the meaning of this productive force of management is relatively wide, and we can say it is a productive force in the broad sense of that term. In this sense, the decisive effect of the level of management and administration on the form of the responsibility system and the decisive effect of the level of the development of the productive force are identical. From looking at the course of development in both domestic and foreign agriculture, we see that the higher the degree of specialization and socialization in agricultural production, the greater the demand for scientific management and administration. This scientific management that we regard as a productive force, just like science and technology, not only has a great effect on the development of all the productive forces, but also directly affects the transformation of production relations. Therefore, in our current changing of the forms of rural management and administration and establishing of a multiform production responsibility system we cannot but pay attention to the important factor of the level of multilevel management in our country's socialized collective agriculture at the present stage.

### III. Proceeding From Reality, Adhere to the Multiformality of the Responsibility System

According to the above analysis, proceeding from the level of productive forces as well as the level of the multilevel management in our country's collective agriculture, and under the premise of socialist public ownership of the means of production in our country's agriculture at the present stage, there should emerge a situation in which many forms of the responsibility system exist side by side, viz, both a collective responsibility system and an individual responsibility system; a lively situation which can both display the superiority of unified management of the socialist collective economy and also arouse the enthusiasm for production of the masses of peasants and individual peasants. Looking at the present time, if we are to do this, there are some theoretical and practical questions that must be studied and inquired into.

#### 1. The question of the multiformality and multilevel nature of the responsibility system.

At present there is a relatively prevalent view, viz, the drawing up of specialized contracts linking remuneration to output is a high grade form of the responsibility system, the assigning of output quotas to individual able-bodied laborers is a middle-grade form of the responsibility system, and the "double contract" is a low-grade form of the responsibility system. We hold that the multiformality of the responsibility system is not to be equated with its multilevel nature. Although each form of the responsibility system has its advantages and disadvantages, and under different conditions the degree of advantage or disadvantage is also different for each form, it is difficult to say that the division of the forms into a number of grades is a scientific division. Marxism tells us that in a certain historical stage of society there is a certain production level suited to that stage and there can only be certain production

relations, and in this there is no division into advanced and backward, high grade and low grade. The forms of the responsibility system fall within the category of production relations--without exception of course. Looking at the many forms of the responsibility system now practiced in our country, we see that no matter whether it is a form that is not a joint production form (like a contract for managing quotas and completing a job in a certain period of time) or a form of joint production, all of them have their own suitability.

If you want to rigidly differentiate what form is advanced, the criterion is suitability. Whatever form, at a given time and place suits the level of the productive forces and the level of management and administration, and is able to effectively arouse the enthusiasm of the great number of cadres and masses, is an advanced form; advanced and suitable are identical. For example, the form of the responsibility system in which there is a large-scale assignment of responsibilities not only is suited to the communes and production teams in some areas of our country where agricultural production is backward and the peasants have difficulties in their livelihood, but also has its suitability for some areas where the level of the productive forces is high or intermediate. It is a "form of the responsibility system universally suited to the entire country," but then how can we categorically assert that, based on certain of its limitations (like being small and complete), it is a low-grade form of the responsibility system suited to a low level of productive forces? Can we say that the so-called high-grade form of the responsibility system--specialized contracts--does not have a single drawback? Again, for example, we cannot rashly state categorically that the form of quota management and contracting a job to be done in a certain period of time is a low-grade, backward form; although it contains certain drawbacks in its method of management and remuneration, it also is not without its suitability. From the viewpoint of time, we see that, in the period of agricultural cooperativization and in the period following it, under conditions in which there were few items of production and the scale of management was small, this form embodied fairly well the system of distribution according to work and aroused the commune members' enthusiasm for production. Even now, some communes and production teams whose level of management is fairly high still successfully practice this form. From the view point of space, the fact that in the past in the greater part of the country this responsibility system was practiced, and that it is today still being practiced in a part of the country, shows that there is a rationality and progressive nature in its existence. Therefore, we must admit that the tendency in the agricultural economy is toward development of work division, coordination, specialization, and socialization. Based upon actual conditions, we can practice forms of the agricultural production responsibility system that are advantageous for specialization and socialization, but we cannot, separating ourselves from the level of the productive forces and the level of management and administration under certain historical conditions, divide the forms of the responsibility system into high grade and low grade, and abstractly talk about the advanced nature of the specialized contracts and the "backward" nature of the "double contract" and quota management forms. If we separate the forms from suitability and stress their advanced nature, we are bound to cause one-sidedness, do things poorly, and very possibly, consciously or unconsciously, return to the past practice of "one knife for everything" and the old path of having only one model. We must further study and comprehend this passage in the sixth plenary session's "Resolution on Certain Questions in the History of Our Party Since



the Founding of the PRC": "The development of socialist production relations does not follow as one fixed model. Our task is, in line with the demands for development of the productive forces in our country, to create at every stage specific forms that are suitable for that stage and that make it easy to continue the advance."

2. The question of upholding the multiformity of the responsibility system under the principle of the socialist system of public ownership.

The premise for upholding the multiformity of the responsibility system is the socialist system of public ownership. A fundamental goal of our practicing the multiform responsibility system is to display to the greatest extent the superiority of the unified management of the socialist collective economy and to arouse to the fullest the enthusiasm for production of the individual commune members, so that the forms will organically combine to speed up the development of agricultural production and satisfy the people's daily increasing necessities of life. Viewing the present situation, there are two tendencies affecting the above-mentioned organic combination. One tendency is that the "leftist" pernicious influence is still making trouble, is still uniting and controlling too much, and no matter whether it is large or small farmwork, no matter whether it is sowing or harvesting, these ideas rise up and unite. This not only fetters the enthusiasm and creativity of commune members, but also, to a very large degree, obstructs the superiority of the unified management of the collective economy. The other tendency is to abandon leadership, holding that the joint production responsibility system must be mostly divided and little united, and even only divided and not united, so that the united is not united, so that, for example, the large and medium-sized farm implements, the water conservancy installations, the collective mountain forests and collective orchards, etc., all lack unified management. This way of one-sidedly stressing the strong points of dispersed management and individual administration overlooking the strong points of collective, unified management is disadvantageous to the display of the superiority of the collective economy, is disadvantageous to the rational use by the masses of commune members of machinery and water conservancy installations, to their effective utilization of various natural resources, and to their creation of even more financial resources. Therefore, if we want to maintain the position of the production team as the main part and give play to the combination of the superiority of the collective economy and the individual's enthusiasm, we must correctly handle the relationship between unity and division, uniting what is suitable to be united and dividing what is suitable to be divided. For the majority of areas in the country, the "unity" aspect should at least include unified plans, unified accounting, and unified deployment of manpower, and the "division" aspect should as far as possible take whatever items that can be managed and administered in a decentralized fashion and contract them out to manpower or commune member households. The specific conditions in various areas are different, and the degree and methods for unity and division are not of the problem of unity and division not only is an objective demand for further giving play to the superiority of the collective economy and to the enthusiasm for production on the part of individual commune members, but also is the key to whether the various forms of the responsibility system can develop healthily.

3. The question of the masses' desires and the choice of the various forms of the responsibility system.

In the majority of cases, whatever form of the responsibility system is welcomed by the masses at a given place conforms to the level of productive forces there as well as to the level of management and administration there. The choosing and determining of the form of the responsibility system to be adopted certainly must start from the degree of awareness on the part of the masses of people and from practical requirements, upholding the principles of voluntary participation and mutual benefit. In a minority of places, the masses demand that a form of the responsibility system be chosen and determined which suits local conditions, but because individual leaders are inclined to a certain form of the responsibility system, the form that suits the inclination of the leaders is mainly practiced there and the rational desire of the masses is not satisfied. In these places, if the problem of the leadership's ideological understanding is not solved, it will be very difficult to think of the multiformity of the responsibility system. There is another situation, viz, proceeding from the level of the productive forces as well as the level of the cadres' management, there is a given form of the responsibility suited to be carried out at a given place, but at this place either because the cadres' work style is not democratic or because of factional trouble between family heads, a considerable part of the masses demand that a form of the responsibility system that is not too suitable be carried out. Faced with this special situation, we should adopt the methods of persuasion and education and of demonstration of typical cases, brief the masses on the advantages and disadvantages of different forms of the responsibility system, and lead them to choose a comparatively suitable form.

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CSO: 4007/403

ANHUI

BRIEFS

PREFECTURE SUMMER CROPS--Chuxian Prefecture, Anhui, expects to reap 1.22 billion jin of wheat and 230 million jin of rapeseed this summer, 20 percent and 35 percent more than in last year respectively. The prefecture has had good harvests for 3 consecutive years. [OW191215 Hefei Anhui Provincial Service in Mandarin 1100 GMT 16 Jun 82]

CSO: 4007/447

POLICY ON PURCHASE OF FARM MACHINERY DISCUSSED

Beijing NONGYE JIXIE [FARM MACHINERY] in Chinese No 1, 1982 p 4

["Farm Machinery Current Report" Column: "Several Policy Questions"]

[Text] The 1982 National Farm Machinery Products Purchasing Conference was held in Changzhou city, Jiangsu Province, 1 to 7 December. The vice minister of the Farm Machinery Ministry, Comrade Li Ben [2621 2609], spoke at the opening ceremony. He first talked about the nation's economic situation and the production and sales trends of farm machinery, the guiding ideology of the 1982 production plans and the principles of arrangement. He also expressed opinions concerning several policy questions. He said: In the opinion of the Farm Machinery Ministry, farmers can purchase farm machinery, and in particular, they can make joint purchases of farm machinery. But we must emphasize that this machinery must be used mainly for farming. The machinery can also be used as an aid for the individual in planting and processing and reasonable fees should be levied for its use, but such machinery cannot be shipped to far away places for sale. He said the business use of tractors for transport should be allowed. Agricultural transport constitutes about 50 percent of the total amount of work involved in agricultural production. The time required for transporting goods by tractor is much greater than the time required for planting in the fields. At present, many localities have unilaterally emphasized the prohibition of the use of tractors for business transport. This is an overly narrow understanding of agricultural transport. The line of separation between agricultural transport and business transport is not clear. We believe that agricultural transport should include: transporting earth, manure, and crops in the fields; transporting chemical fertilizers, farm chemicals and such production materials needed by the farmers; transporting coal, food grains and such materials for living; transporting building materials for building houses; transporting agricultural sideline products for submitting to the state; and transporting raw materials and products back to the commune and brigade enterprises. Comrade Li Ben also mentioned some administrative leadership departments in provinces, cities and autonomous regions which have established many regulations concerning purchases by farm machinery companies which prohibit them from purchasing superior quality products from other provinces and cities. This is a regional closed-door policy to protect the backward products of the localities. It is unfavorable to the readjustment of the farm machinery industry and we must oppose it firmly.

9296

CSO: 4007/267

## FUJIAN

### BRIEFS

COUNTY RICE DISEASE--As of the end of May, rice blast had spread to Shaowu County's 38,000 mu of early rice. By adopting various measures, the county has now effectively controlled the rice blast. [OW141217 Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 11 Jun 82]

DATIAN COUNTY FOOD GRAINS--In addition to planting enough major grain crops, Datian County, Fujian, has planted 75,000 mu of sweet potato, legumes and other miscellaneous food grains, 20,000 mu more than in last year. [Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 17 Jun 82]

CSO: 4007/447

# PREVENTION, CONTROL OF INSECT PESTS IN STORED GRAIN

Lanzhou GANSU RIBAO in Chinese 15 Apr 82 p 1

[Article by Storage Office, Provincial Grain Department: "Briefing on Several Grain Storage Pest Prevention Methods"]

[Text] Comrade Editor:

Ever since the Third Plenary Session [of the 11th Party Central Committee], great improvement has taken place in the lives of commune members, a small grain surplus gradually accruing. However, on the issue of grain management and storage, experiences and methods are still lacking, and grain in storage has been eaten by insects. My home is in Shangxiao Commune in Zhenyuan County. In mid-November last year when I returned home to visit relatives I discovered that a white (and yellow) powder had fallen beneath the corn that my family had hung up last year and the year before. Upon taking down the ears of corn and taking a look, I found that bugs growing in the corn had hollowed out the kernels causing a very great loss. Similar situations occurred in all the villages in the countryside where we live. Stored wheat also developed bugs and moths that caused varying degrees of damage. Will your newspaper please provide some scientific ways in which grain can be stored and cared for?

Zhao Mingru [6392 7686 0320], Dongxia Mine worker, Huating Mining Bureau

The damage caused to stored grain by insect pests is serious. Prevention and control measures of different kinds must be taken on the basis of their living habits and activities to achieve the goal of early prevention and early cure. Let us now relate several prevention and control methods for consideration by rural communes and brigades and the masses of commune members.

Prevention and Control Through Sanitation and Hygiene. Inasmuch as most insect pests in grain reproduce in damp, dark, and dirty places, in each and every step of the way from harvesting, to husking, to storage, to care, and effective job of sanitation and hygiene must be done. When removing husks, for example, the area must be swept clean, and all surrounding weeds, garbage, and stalks from which the grain has been removed eliminated. Wheat husks should be promptly taken away; the grain to be stored in granaries should be thoroughly sunned, ventilated and screened so that the grain will be dry, clean, and



plump. Containers for storing grain and warehouses must be maintained clean and sanitary inside and outside to get rid of all hidden pests and prevent infestation.

**Physical and Mechanical Prevention and Control.** This means use of the grain's own natural physical properties and mechanical physical function to inhibit growth of insect pests to achieve the goal of eliminating them. Commonly used methods are as follows:

One is the use of high temperatures to kill bugs. Granary mites have a certain range of temperature to which they can adapt, and when temperatures exceed the maximum limits they require, they cannot tolerate them; their physiological functioning is destroyed or stifled leading to their death. In the case of newly harvested peas or wheat, for example, sunning under a scorching sun with the grains spread out to a 2 cm depth and turned once each hour will bring the grain temperature above 45°C. After 2 hours, it can be stored while still hot or placed in containers and later covered with clean straw mats or rush mats. Cloth bags filled with either clean wheat chaff or dry sand can be placed on top of the grain so the grain's temperature automatically drops. After being subjected to heat in this way, the protein in the bodies of the insects congeals causing death.

Second is drying to kill bugs. This entails use of a drying machine to kill bugs by eliminating water. When regulating the temperature and flow of various kinds of drying machines, usually an internal machine temperature of from 80 to 100 degrees centigrade is needed to bring the grain temperature to about 50°C, which will kill the bugs. But grain dried in a dryer has to be cooled before it can be stored; otherwise, unless the heat has been dispersed, calorific molding may accidentally occur.

Third is killing the bugs with cold. During the winter, select a cold, dry, clear day for removing bug infested grain to the outside. Spread it out to a depth of 2 to 3 cm when temperatures are at between 5° and 10°C below zero, turning the grain about once every 2 hours. Ideally this freezing should be done for 5 days and nights, and the bugs will freeze to death. After freezing, the grain should be ventilated and screened to get rid of the frozen and stiffened bugs. Then, while still cold, the grain should be stored in tightly closed containers. In this way all the bug larvae hiding in the grain can be frozen to death.

Fourth is ventilating and screening to eliminate bugs. By subjecting bugs and debris that are lighter than air to the airflow of a fan, they will be blown far away while the grain will drop nearby, and the goal of separating the grain from bugs and debris will be achieved. When bugs are larger or smaller than the kernels of grain screening can be done, the bugs and debris being eliminated by using screens with different size holes, the residue being concentrated in one place for burning.

Fifth, is the gland method. This method is used primarily in prevention and control of moths. Since moths mostly lay eggs on the surface of grain heaps where they propagate to become a pest, the gland method may be used to control

them. The gland method requires flattening tightness, denseness, and sealing so that adult moths cannot mate and so that there is no room to lay eggs, making reproduction impossible.

There is also the method of luring them to their death. Mostly this takes advantage of the pest's habits to lure it into capture or death. A case in point is the corn weevil [*Sitophilus zeamais*], which has a habit of climbing. If straw is bound together to form a handle and the lower end is spread apart to form a parasol shape, and the thing is placed on top of grain, the pest will climb into the straw handle after which it can be burned and deeply buried. Moths usually are phototactic so if a basin of water is placed on a grain pile in the evening and an oil lamp placed atop the basin, the pest will flutter toward the light and fall into the water and drown.

**Oxygen Deprivation Prevention and Control.** Dry the grain and store it in a container. After the container is full, seal it tightly to cut it off from outside air and use the physiological metabolic activity of the grain, pests, micro-organisms and such live organisms to gradually reduce the oxygen content of the grain and gradually increase its carbon dioxide content. This creates an oxygen deficiency or a low oxygen content throughout the grain so that the insects pests will be unable to survive. When oxygen concentration in the grain has been naturally reduced, a small amount of aluminum phosphate may be used to help kill the insects, namely 1 to 2 grams of aluminum phosphide per cubic meter. It should be placed in a small cloth bag and buried half a meter deep in the grain where it will serve to kill the insects within 10 to 15 days time.

**Chemical Prevention and Control.** This method uses toxic materials to directly or indirectly poison pests. It is both effective in killing insects and in preventing or controlling their spread, serving as both a method of prevention and control.

There are numerous chemicals available in the form of powders, liquids, emulsions, smokes, and gases. Each has its own characteristics. For example, powders are compounded from a mixture of a toxicant with pottery clay, talcum powder, and such inert materials. The smaller the powder granules the larger the area covered, the greater the opportunity for pests to come in contact with it, and the greater its power to kill or disable. Fumigating toxicants include chloropicrin and aluminum phosphide. They are characterized by a low boiling point, strong volatility, and the higher the temperature, the faster their spread. Use of these intensely toxic chemicals should be done with the help and guidance of technicians from food units; instructions for use should be strictly followed, and attention given to pertinent points to strictly guard against accidental poisoning of people, livestock, or grain.



## ORGANIZATION OF AFFORESTATION EFFORTS DESCRIBED

Lanzhou GANSU RIBAO in Chinese 15 Apr 82 p 1

[Article: "Rapid Progress in Afforestation of Qingyang Prefecture. Clear Perception, Vigorous Action, Leaders Taking the Lead, and Making a Concerted All Out Effort"]

[Text] Editor's Note: Qingyang Prefecture has done a good job of afforestation this spring and should be commended. Facts have shown that wherever leadership comrades have a clear perception, take vigorous action, and take the lead in work, afforestation proceeds quickly and results are good. It is hoped that all prefectures will now seize the season, will work ceaselessly and untiringly, and fulfill their spring season afforestation tasks.

The four measures for growing seedlings now that the Qingyang CCP Committee has put forward are also very good ones, and can be provided to all prefectures for the lessons they teach.

As of the end of March, Qingyang Prefecture had afforested more than 210,000 mu or 77.8 percent of its afforestation quota for the year. Heshui, Qingyang, Huanxian, and Zhengning counties have already fulfilled more than 80 percent of their afforestation quotas for the entire year. The prefecture has also grown a total of more than 21,300 mu of seedlings. An overall survey of Qingyang Prefecture's afforestation situation shows it characterized particularly by great momentum, rapid progress, and good results.

First the broad masses of cadres and people fully understand the important significance of afforestation and actively devote themselves to this movement by all the people. Statistics show that 750,000 people from cities and town to rural villages throughout the prefecture have joined in the springtime afforestation movement. Arousal of the masses in Heshui County has been relatively complete; within the very short space of slightly more than half a month's time, the county has afforested more than 13,100 mu, overfulfilling its quota for the entire year. Xiangle Commune in Ning County was an advanced unit last year in Qingyang Prefecture, and this year plans call for afforestation of 8,000 mu, 9,849 mu of which was completed this spring.

Second, leadership cadres at all levels personally took part, working while giving directions in the frontlines of afforestation and effectively spurring on the masses. Heshui County CCP Committee secretary Wang Naifeng [3769 0035 1496], and county magistrate Hui Zhenxing [1920 2182 5281] personally surveyed plans and took charge of movement of seedlings. Ning County CCP Committee secretary Zhang Chongjian [1728 1504 0313] walked 60 li from Chengbeichuan to survey the afforestation situation. When he discovered that quality of tree planting was not high in a stretch between Waxie and Chengguan communes, he immediately made an on-site study in conjunction with comrades from the communes, and had the trees replanted. Numerous commune and brigade cadres went into the frontlines of afforestation, made prompt on-site inspections and criticisms, and solved problems, giving powerful impetus to the progress of afforestation.

Third was centralized planning with clear designation of key areas. Seven counties in the prefecture preliminarily designated 32 key communes for afforestation, each of which was charged with afforestation of more than 2,000 mu. The general plan was for one mountain and one ravine, lumped together in a continuous tract for centralized operations of centralized planning, the work being done in individual sections. The key points for afforestation in each county were relatively centralized in terms of leaders, workforces, planting of seedlings, funds, and technical forces.

Fourth was further carrying out of the "three fixed" policy to promote afforestation and production. Since the lunar new year Zhengyang, Ning, and Zhengning counties newly transferred to commune members 103,600 mu of "three wastelands," and issued 15,800 forest rights certificates.

Fifth was conscientious investigation and handling of cases involving destruction of forests. Recently the prefecture has investigated and disposed of more than 700 cases of various kinds of forest destruction, and some counties and communes have also convened mass meetings to publicly handle, with great fanfare, cases involving destruction of forests in an attack on the evil tendency toward destruction of forests.

Simultaneous with spring afforestation, the Qingyang Prefecture CCP Committee required each county and commune to seize the favorable opportunity and use four methods for handling propagation of seedlings. First was use of state owned nurseries and commune and brigade forest farms for growing them. Second was contracting to individuals of production team reserve land for the growing of seedlings. Third was the signing of contracts with key households for the growing of seedlings. Fourth was requiring each commune household to grow one-tenth of a mu of seedlings.

9432

CSO: 4007/400

SPECIAL EMPHASIS DEVOTED TO COTTON GROWING

Lanzhou GANSU RIBAO in Chinese 15 Apr 82 p 1

[Article by Cheng Jingli [7115 4544 4539] and Gao Guangcai [7559 1684 2088]: "Jiuquan Prefecture Diligently Implements Cotton Growing Plans. While Positively Not Relaxing Grain Production, Economic Crops Actively Developed"]

[Text] While stabilizing the grain growing area at 1.27 million mu, Jiuquan Prefecture has taken effective action to actively implement cotton growing plans. As of now, collectives and individuals have planted cotton on an area of more than 91,000 mu.

Jiuquan Prefecture is the province's main cotton growing area. While readjusting the internal structure of agriculture and arranging crop patterns, counties and communes have diligently and equitably put into effect state plans for the area to be sown to grain. Last winter and this spring they perfected and consolidated responsibility systems and signed agreements linked to cotton output with commune members, thereby designating the households and the land for the planned growing of somewhat more than 87,000 mu of cotton and setting up a system of rewards and penalties. In addition to fulfilling cotton growing area plans, the Huancheng, Nancha, and Xihu communes in Anxi County also mobilized commune members to grow more than 1,300 mu of cotton on their private plots.

By way of assuring increased output of cotton, the Cotton and Livestock Products Company and the Supply and Marketing Cooperative paid an advance against anticipated cotton production to communes and brigades. Agricultural science and technology units at all levels went into communes and brigades to conduct 127 runnings of agricultural science and technology courses. They taught the mixing of cotton seeds in pesticides, farming techniques, prevention and control of diseases and insect pests, the "five major prunings" and such techniques, 783 technical personnel receiving the training.

9432

CSO: 4007/400

# CHICKEN RAISING EMPHASIZED AS FIRST STEP TOWARD ECONOMIC DIVERSIFICATION

Lanzhou GANSU RIBAO in Chinese 5 Apr 82 p 1

[Article by Gao Guangcai [7559 1684 2088] and Fan Yongyi [2868 3057 5030]:  
"Combination of Farming, Livestock Raising, and Processing To Make Rural  
Economy Prosper. Jiuquan Prefecture Resolutely Changes Inequitable  
Agricultural Structure"]

[Text] Following a summary of experiences, Jiuquan Prefecture has resolutely changed its inequitable agricultural structure. While guaranteeing fulfillment of state commodity grain quotas, it has taken the road of simultaneous development of grain and livestock in a combination of farming, livestock raising, and processing in order to promote large scale development of the rural economy.

Jiuquan Prefecture is one of the major commodity grain bases in Gansu Province. Conditions here are suited both to the growing of grain and to development of economic diversification. During the past 2 years, some representative communes and brigades with all around increases in output and earnings have come into being. The Prefecture has decided that while guaranteeing fulfillment of state commodity grain quotas, it will change the old methods of the past of relying on sales of excess grain and take the new road of simultaneous development of grain and livestock in a combination of farming, livestock raising, and processing.

In order to do this, it has put forward four specific actions to be taken. One is to give support to development of key households and specialized households for the raising of livestock and poultry in an effort to increase peasant earnings from the breeding industry throughout the prefecture. Second is to guide commune members in good farming practices on their private plots, on land devoted to the growing of animal fodder, and on forest and grass lands. Third is concentrated emphasis on the "four plantings" (of cotton, soybeans, grapes, and compound grasses [5112 0678 5430], the "four raisings" (chickens, hogs, sheep and goats, and rabbits), and the "four processings" (pressing oil, compound livestock feed, bean products, and sewing), and the "one circulation" (development of collective businesses) in an effort to outstandingly increase earnings this year from economic diversification. Fourth is funds for development of economic development, most of them to be taken from commune and brigade collective accumulations

while at the same time encouraging commune members individually to invest in shares for the running of joint operations.

Before spring farming got underway, the prefecture held a series of rural work conferences to discuss these measures and to unify understanding about them. Once spring farming got underway, leadership comrades at the prefecture and county levels went down into the frontlines to supervise, encourage, and inspect, and to put planting plans into effect on production teams and households. In addition, they adapted general methods to local situations, gave tailored guidance, and began to establish more than 30 individual economic diversification bases in order to assure fulfillment of plans for "hot-selling" products. Focusing on the weak link of the breeding industry in the prefecture, they proceeded from the basis of overall planning to make a breakthrough in chicken raising. County and commune leadership and specialized cadres, led by an assistant director, made the rounds of 18 hatching points, held on-site discussions, and made on-the-spot decisions, very quickly putting to work more than 2,000 key chicken raising households and specialized households. This spring the prefecture hatched 600,000 fine quality eggs from more than 400,000 hatch chickens. Counties and communes, communes and brigades, brigades and households signed contracts level by level for the hatching and feeding of chickens, and received support in funds, feed, and techniques.

9432

CSO: 4007/401



## BRIEFS

JIUQUAN PREFECTURE FARM MACHINERY--The eight farm machinery enterprises in Jinqian Prefecture, Gansu Province, actively implemented the policy of readjustment, improved business management, changed the business management method, and readjusted the structure of products. They actively expanded light industrial and civilian machinery products, developed diversification, contracted work to process incoming raw materials, and at the same time, implemented various forms of the economic responsibility system and realized good results. In 1980, the total production value of the whole prefecture surpassed the annual plan by 38 percent, realized a profit of 329,000 yuan, and created the best profit level of the past. From January to August of 1981, the total value of industrial production completed reached 3.18 million yuan, constituting 71.6 percent of the annual plan and a profit of 100,000 yuan. The 1981 profit goals were realized with a surplus 4 months ahead of schedule; every enterprise realized a profit and suffered no losses. [Text] [Beijing NONGYE JIXIE [FARM MACHINERY] in Chinese No 1, 1982 p 5] 9296

SEED PLANTING HOUSEHOLDS INCREASE--Tianshui Prefecture seed units at all levels have vigorously developed seed growing households this year and signed technical contracts early with seed growing households for experiments with fine seed varieties, for bumper yield demonstrations, for fine seed propagation, and for extension of seeds to use in farming. Now the number of seed growing households in the prefecture has grown to 6,657 households, three times more than last year. Last year, Ping'an Commune in Zhangchuan County designated 181 households as fine variety propagating households for "xiaobaihua" potatoes on an area of 188 mu. Results were a yield averaging 3,076 jin per mu from the propagating fields, a 1.64 fold increase per mu as compared with local variety, "Changshu No 4." This year this commune has required an increase to 293 in the number of households undertaking propagation of fine variety, "xiaobaihua" and an expansion of the growing area to 300 mu. The propagation area in the prefecture for "Zhongdan No 2" fine variety corn has also been increased from last year's somewhat more than 40,000 mu to this year's 140,000 mu. [Text] [Lanzhou GANSU RIBAO in Chinese 5 Apr 82 p 2] 9432

CSO: 4007/401

## BRIEFS

PEASANTS' INCOME INCREASES--In Guangdong Province, the rural economy has quickly improved and peasants' income has remarkably increased. In the province, the total income of rural communes, not including fishery communes, last year was 23 percent more than in 1980 and the income distribution to commune members was 28.3 percent more than in 1980. The per capita income distributed by the collective was 130 yuan, 26.2 percent more than in 1980. The per capita income of commune members derived from household sideline production was 85.7 yuan. Thus, the per capita income in rural areas in the province last year reached 215.7 yuan. [Text] [HK101417 Guangzhou Guangdong Provincial Service in Mandarin 100 GMT 8 Jun 82 HK]

CSO: 4007/453

SOME THOUGHTS ON DEVELOPMENT OF FORESTRY IN GUIZHOU

Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese  
No 2, 1982 pp 41-43

[Article by He Tingxian [6320 1649 7359], Guizhou Provincial Department of Forestry: "Cursory Remarks on the Issue of Making Most of Guizhou's Forestry Industry Advantages"]

[Excerpts] Guizhou Province has extremely abundant forestry resources. A discussion of major kinds of trees follows.

One is China fir. China fir is the tree principally used for lumber in Guizhou, accounting for between 70 and 80 percent of commodity lumber over the years. Guizhou has a long history of growing China firs, the regional distribution of which is very widespread. Ninety percent of the province's counties produce China fir.

One of China fir's outstanding characteristics is its rapid growth. It reaches maturity in 10 to 20 years and is a rapidly growing variety of tree in Guizhou. A survey of 44 base forest sites shows 11 year old China fir reserves to average 15 cubic meters per mu, the minimum being 10.57 cubic meters and the maximum being 19.3 cubic meters.

Still another China fir characteristic is good quality lumber with high utilization value. Guizhou's "nursery stock" has long enjoyed brisk sales both at home and abroad, and is very competitive. Right now a China fir coffin commands \$1,500 in the Hong Kong market. In China markets, 1 cubic meter of China fir has a value of 400 yuan and can be exchanged for 2,000 jin of rice.

Second is tung oil trees. Guizhou Province's tung oil tree output is second only to that of Sichuan Province putting it in second position nationally. It is a traditional Guizhou export commodity that has always enjoyed a high reputation in international markets. Guizhou Province's tung oil trees have an 87 percent commodity rate and a 34 percent foreign exchange rate.

Tung oil trees possess strong adaptability, fruit early, and provide many benefits. The peasants praise them saying, "If a family has 1,000 tung oil trees, its sons and grandsons will never be poor." Currently more than 60

counties grow tung oil trees over an area totaling 4.2 million mu. During the past 3 years state procurement of Guizhou tung oil tree seeds has averaged 130 million jin, 67 percent of the gross output value of economic forests.

Third is raw lacquer. Guizhou Province's raw lacquer output now ranks fourth in the country. It is a renowned traditional Chinese export commodity. Seventy counties in the province produce lacquer, most of it in Bijie Prefecture. Dafang County's lacquer has a pungent smell and fine texture; it is called "genuine lacquer." "Genuine lacquer's" quality is the best in the country and renowned both in China and abroad. It is sold widely in Japan and the countries of southeast Asia. People say that "genuine lacquer is as clear as oil; it's brightness reflects a person's head; its color flashes like the stripes on a tiger; and it calls to mind fish hooks." Raw lacquer has high economic value. Export of 1 jin of raw lacquer is equivalent to 105 jin of wheat. Growing of 1 mu of raw lacquer is the equivalent of growing 6 mu of wheat.

Development of forestry plays an important role in maintaining ecological balance in developing agricultural production, and in improving the lives of the people. The forest cover rate in Qiandongnan Autonomous Zhou is 27.7 percent. For every mu of cultivated land there are 4.4 mu of forest shelter; consequently erosion is less than 10 percent. Paddyfields account for 75 percent of the zhou's cultivated land area; the effective irrigation rate is 56 percent; the assured irrigation rate is 42 percent; drought rarely occurs; and grain outputs are relatively high and relatively consistent. Between 1971 and 1978 three great droughts occurred, yet grain output for the zhou as a whole increased by 211.19 million jin, a 14.4 percent increase. In seven key forest area counties (Liping, Rongjiang, Congjiang, Mianping, Tianzhuang, Leishan, and Jianhe), average extent of increase was 26 percent, which was 11.6 percent higher than for the average rate of increase for the zhou as a whole. The greatest increase in output occurred in Rongjiang County, which had a 39 percent increase.

Guizhou Province's forest cover rate is only 14.5 percent. Calculations made from hydrological data show an annual discharge into the Chang Jiang and the Zhu Jiang of more than 61 million tons of silt for the province as a whole (in 1978 it was 79.6 million tons), or an average 1.3 tons per mu of cultivated land. This means an accumulated loss of 26 tons per mu for the past 20 years, equivalent to the denuding of the soil's surface horizon to a depth of 1 cun. This runoff of silt contained more than 480,000 tons of nitrogen, phosphate, and potash, more than the province's annual output of chemical fertilizer. As a result, the area of infertile soil increases year by year. According to the first soil survey done in the Qiandong Autonomous Zhou in 1959, infertile soil accounted for 20 percent of the zhou's cultivated land area. Survey statistics from the second soil survey in 1976 showed infertile soil to account for 42 percent of the zhou's cultivated land area, a more than onefold increase. In the 15 year period between 1961 and 1975, as a result of the destruction of forests to clear land for agriculture and soil erosion, rock mountains in Qingzhen County increased by 77,470 mu, accounting for 3.5 percent of the total area. Still another characteristic of Guizhou Province's natural geography is a karst topography area of more than 70 percent. In

most places atop the limestone is a layer of sandstone, sandy shale and Quarternary Period clay cover. When these areas have no forest cover, the underlying limestone very quickly becomes exposed to form "barren land." Limestone is extremely resistant to weathering, and its weathering to form soil takes a geological age. If the ecological environment of this more than 70 percent of the area continues to deteriorate, without doubt the very existence of the people will be threatened, and they will suffer the penalty of nature. Guizhou Province is also situated on the eastern escarpment of the Yunnan-Guizhou Plain where the water system is spread over a wide area. Consequently, the natural ecological balance of the forests not only functions to influence the province's agricultural and livestock production, but also influences the industrial and agricultural of the middle and lower reaches of the Chang Jiang and the Zhu Jiang. The silt content of the Hongshui River in Guizhou Province is second only to that of the Huang He. This poses a severe threat to the middle and lower reaches of the Zhu Jiang. As a result, making the most of Guizhou Province's forests, expansion of the forest area, and maintenance of the natural ecological balance possess extremely great importance.

### 3. Several Problems Urgently in Need of Solution in Making the Most of Forestry

First of all it is necessary to correctly understand and correctly handle the relationship between grain and forests. At the present time the contradiction between forests and grain is conspicuous. Right now some places are unable to very well make the most of forestry's advantages. They are frequently preoccupied with grain problems and fear that forestry will impair grain production. Guizhou Province has a large population relative to cultivated land, and yields per unit of area are low. In some mountain regions, each person has only several tenths of a mu of cultivated land, but there are 10 mu or several tens of mu of barren mountains per capita. This situation demands that we do a good job of scientific farming, increasing total grain output by increasing yields per unit of area. It also requires that we keep our eyes on widespread use of mountainlands for the development of forestry lumber, and forest byproducts that can be exchanged for grain. Because commune member food rations are inadequate in the forest region of Jinping County, annually 10,000 mu of forest are destroyed and the land cleared, and 2,000 mu of forests are destroyed to make farmland. In 1980, with policy permission, 2,000 cubic meters of timber outside plan were exchanged with other provinces for more than 4 million jin of rice to supplement commune member rations in forest areas and the destruction of forests greatly decreased.

Second is emancipation of the mentality and liberalization of policies. For forestry to advance, principal reliance will have to be placed on arousal of peasant enthusiasm. The main problems in our present policies for handling lumber and characteristic native sideline products are fairly heavy uniform purchase and requisition purchase quotas with virtually stifling control. Thus, one current major problem in making the most of forestry's advantages is further emancipation of the mentality and liberalization of policies. So-called liberalization means self-determination under guidance of the state plan in forestry production, with definite distribution rights for products.



Once state plans or contract quotas have been fulfilled, policy should permit self-determination in how excess timber and forest by-products are handled, so they may be exchanged for needed production and consumer goods.

Privately retained mountains act as a supplement to the socialist economy and possess extremely important significance of satisfying commune member livelihood needs, for hastening afforestation, and for protecting the fruits of collective forest operations. The Guizhou Provincial CCP Committee and Provincial People's Government have ruled that wherever conditions permit, 3 to 5 mu may be designated as privately retained mountain for each commune and brigade household. Where more barren mountains exist, more land can be so designated. There are about 20 million mu in the province that should be designated privately retained mountainland. Privately retained mountainland, first of all, requires not investment by the state; and, secondly, without any undue bother on the part of the collective within 2 or 3 years these barren mountains and wasteland slopes will begin to be afforested.

Third is overall planning and equitable distribution. To make the most of advantages forestry offers, matters must be handled in accordance with natural and economic laws with adaptation of general methods to suit local situations, strongpoints highlighted, and major efforts made to build commodity forest bases. Building of such bases requires specific scientific plans. The turnover period for forestry production is long, so it will not do to have only short range plans; long range plans will be needed too. Moreover, once a plan has been formulated, it should not be lightly changed. If one-fourth of the province's existing more than 100 million mu mountain area suited to the growing of forests were to be allotted for the building of high standard commodity lumber forests and economic forest bases for the production of tung oil trees, raw lacquer trees, Chinese tallow trees and tea oil trees, and if they were intensively farmed in the same way as grain is grown, being given meticulous care, the value of economic forests and fast growing timber forests per mu would be three to seven times greater than the value of 1 mu of farm crops. The value such bases created would be, at minimum, equal to that of the province's 30 million mu of cultivated land; mountain regions would prosper very quickly; and the economic income of the province as a whole would greatly increase. The masses say it well when they say, "The way to bring prosperity is to develop the province's forestry."

Fourth is to take the integrated route of operating integrated forestry, industrial, and commercial enterprises. Throughout the province 39 integrated forestry, industrial, and commercial enterprises have been operated by state owned forest farms by themselves or in conjunction with neighboring communes. Another 18 integrated forestry, industrial, and commercial enterprises have been operated jointly by communes and brigades in mountain regions. Though the trial run period has not been very long, prospects for this new thing have unfolded before our eyes and a very large number of advantages have become evident. One is that they help implement a program based on forest farming to advance forest production and improve the material living standards of the masses. Second is that they help make full use of forest resources, save timber, support national construction, and satisfy the needs of people's livelihood. Third is that they help strengthen centralized management of

forests in a change of the current administration by many different units and the situation of rampant cutting and denudation. Fourth is that they help use economic methods to include commune and brigade forestry products in forestry, industrial, and commercial enterprises; they centralize processing and use; and they strengthen the collective economy. Fifth, forestry units are able to earn a fair profit, which helps expand forestry reproduction. In short, development in the direction of comprehensive forestry, industrial, and commercial operations is a trend in the modernization of forestry and an objective requirement for economic development.

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CSI: 4007/405

LEADERSHIP FOR FIGHT AGAINST DROUGHT STRENGTHENED

Chijiazhuang HEBEI RIBAO in Chinese 14 Apr 82 p 1

[Article: "Cangzhou Prefecture Cadres, Masses Cooperate to Fight Drought"]

[Text] In Cangzhou Prefecture, the key issue of setting up rural grassroots leadership teams has been ferociously taken in hand to do a solid job of the "one resistance and double contracting systems" [a system of fixing output quotas on households and a system of peasant households assuming full responsibility for task completion]. As of now the prefecture has already watered 1.65 million mu of land that was not plowed following the last harvest. This is more than 1 million mu more than was watered during the same period last year.

In more than 700 production brigades, the unplowed land has been given one spring watering, and more than 70 communes have watered more than half the land. The pace of fertilization, cultivation, and hoeing of wheatfields has also been faster than during the same period last year. By way of solving problems of "decentralized organization, chaotic ideology, and fatuous work style" in rural grassroots leadership teams, the Cangzhou Prefecture CCP Committee and government administrative offices launched a campaign of "one resistance and double contracting," and took three actions as follows: First was maintaining virtually stable the grassroots cadre corps. This meant that the "four kinds of people," and the "three kinds of people" had to be resolutely done away with. Where readjustment of a small number had to be made, the readjustment was strictly attended to. Cadres who had been promoted overly fast but did their work well did not necessarily have to be readjusted. When no readjustment of others was required, leaders explained matters clearly to them face to face so that they could be free from anxiety and devote themselves to their work. Second, each echelon set up responsibility systems for level by level action. Responsibilities were strictly and impartially defined; rewards and punishments were clearly delineated; the advanced were commended, and the laggards helped to advance. Third was strict attention to solving the matter of production team cadres abandoning their responsibilities. Following reorganization, these leadership teams actively led the masses in launching struggle against drought to hasten the pace of the fight against drought.

CONDITION OF WHEAT SEEDLINGS, HARVEST PROSPECTS EXAMINED

Shijiazhuang HEBEI RIBAO in Chinese 8 Apr 82 p 1

[Article: "Wheat Seedling Situation Takes Favorable Turn, but Only Continuation of Intensive Care Can Win Bumper Harvest. Deputy Director of Provincial Bureau of Agriculture and Agronomist Gong Bangduo [7895 6721 6995] Talks About Technical Care of Wheat at the Present Time"]

[Text] Recently specialized technical cadres from agricultural bureaus and in the four prefectures of Handan, Xingtai, Shijiazhuang, and Hengshui and from the Provincial Crop Institute formed a southern area wheat examination team for the examination of current wheat seedling growth and care, and to put forward ideas for future technical care. Now I will talk about the following several views:

Thanks to early action in spring wheat care, to strict attention, and to good care, great changes have taken place in wheat seedlings since they greened up, and everywhere there has been a turn for the better. Right now the seedling situation approaches that of the same period last year. This is demonstrated in three ways: First is early greening up, numerous new tillers, and fairly rapid growth of plant colonies. Generally, greening has occurred about 10 days sooner than last year; the number of tillers has increased by from 100,000 to 200,000 per mu as compared with before the onset of winter, an average of 150,000 per mu. As compared with last year, the gap between wheat plant colonies has become increasingly small, and some have surpassed last year. According to statistics from Handan, Shijiazhuang, and Hengshui prefectures, before the onset of winter last year, but by the time growth got underway, they were only 20,000 fewer. Reports from four prefectures indicate that in 17 counties the wheat seedling situation is currently somewhat better than last year; in 16 counties it is about the same as last year; and in 18 counties somewhat poorer than last year. A look at the situation in four counties shows the total number of tillers during the winter to have been 180,000 fewer than in 1980, but only 53,000 fewer now. A look at the situation in 12 production brigades shows tillering to be about the same or slightly better than in 1981. Second is maintenance of greenness throughout the winter, light freeze damage, and few dead seedlings. Last year the wheatfield area in which the dead seedling rate was more than 10 percent in the four prefectures covered 3.18 million mu, but this year, as of now, the dead seedling areas covers only

210,000 mu. In four counties last year the dead seedling area covered 217,000 mu, but this year there are virtually no dead seedlings. Third, the differentiation period for wheat has been protracted. This helps formation of large spikes and an increase in the number of grains. Since the greening up stage came early this year and temperatures tended to be low again during the last half of March, the spikelet differentiation period was lengthened. In addition, there was little depletion of soil fertility before the onset of winter and quite a bit of nitrogenous and phosphate chemical fertilizer was applied, so reserve strength is available for the wheat, and the number of spikes and grains may increase.

Though beneficial factors have been fairly numerous and changes in seedling condition fairly large since the lunar new year, some problems also exist that must arouse a high degree of serious concern. One is that the drought situation is presently very serious. Though it rained several times this spring, in most places the amount of rainfall was not great, generally less than 20 millimeters. For a considerable portion of the wheat, soil moisture conditions are very poor. Water content in dryland wheat soil that has not been watered is less than 10 percent. For soil watered once during the winter, water content is also only 12 to 13 percent, posing serious threat to wheat growth. In addition, because above ground water sources do not suffice and the ground water table has fallen, the wheatfield area that can be watered and the frequency of watering will be seriously affected. A second is that though wheat colonies are about what they were last year, growth of individual plants has been rather poor. Wheat tillering this year has been characterized by much spring tillering and little winter tillering; numerous small tillers and few large tillers; little secondary root growth, and a possible drop in the tillering and full heading rate. Consequently maintenance of last year's number of spikes per mu will also be very difficult. A third is wheatfield care has been uneven from place to place. Some places got started late and progress has been slow. They have yet to finish the first watering, and their wheat care tasks are very great. Therefore, the task of winning a bumper wheat harvest this year will be a very arduous one.

The winning of a bumper summer harvest will require continued efforts and genuine improvement in mid and late season wheat care. In view of wheat seedling condition and problems that may crop up, wheat field care during the mid and late season will particularly require attention to "one combat," and "two improvements." The two improvements mean improvement in the spiking rate and improvement in the fruiting rate. Now let us propose several points for care during the jointing season.

First is timely watering for jointing. Measurements show that during the jointing season, wheat's need for moisture suddenly increase to three times the volume of water consumed during the greening season. The volume of water needed from the jointing to the spiking stage amounts to one-third the total water requirements. There can be no stinting on water during this period. If water is lacking, the spiking rate and the fruiting rate will decline. Experiments conducted by the Hengshui Prefecture Institute of Agricultural Science show that when watering has been done only once,



a watering for jointing increases yield by 62 percent; water for spiking increases yield by 20 percent; water for greening up increases yield by 18 percent; and watering during freezing weather increases yields by 16 percent, yield increases from watering during jointing being most spectacular. Therefore, no matter whether the wheatfield is a high yield, medium yield or low yield one, all available means should be used for timely watering during jointing.

Secondly, during jointing, topdressings of fertilizer should be applied in accordance with seedling conditions. During jointing, seedling conditions vary very greatly and early deterioration is to be guarded against, as is continuation of the vegetative growth stage without entering the reproductive growth stage, and late ripening. Top dressings of fertilizer should be given according to the "three regards," namely regard for soil fertility, regard for fertilizer formerly applied, and regard for wheat appearance and growth. When soil fertility is poor, little fertilization given earlier, and wheat seedling growth weak, some chemical fertilizer may be applied. When soil fertility is good, much fertilizer was applied earlier, and seedlings are growing well, only a slight amount of fertilization should be done. It is necessary to understand the right time and the right amount to prevent topdressings that come too late or in overly large quantities resulting in continuation of vegetative growth and late ripening, with damage from hot dry winds in the late stage, which is bad for increasing grain weight.

Third, late and weak seedlings generally develop late, mature late, and are prone to the bad effects of hot dry winds, which cause a loss of grain weight. Therefore, it is necessary to do more cultivating and hoeing to increase ground warmth so as to promote early development and rapid growth of the wheat seedlings.

Fourth is attention to prevention and control of wheat diseases and insect pests. According to a provincial insect forecast, a large incidence of wheat aphids is likely this year, requiring a high degree of attention. In addition, precautions should be taken against red spiders and wheat rust. Should they suddenly occur, they should be brought under control at once. Diseases and insect pests should not be allowed to impair the per 1,000 grain weight and reduce yields.

In addition, because of the seriousness of the drought, increases in yields will depend primarily on watering, so full advantage should be taken of watering. Special attention should be given to watering and care of wheatfields. In irrigated lands emphasis should go to tapping potential for increased yields from medium yield counties, medium yield communes, medium yield brigades, and medium yield plots. A look at the situations examined on this occasion shows that in all medium yield brigades that implemented responsibility systems, the wheat seedling situation was better than during the same period last year. Water conservancy conditions in these brigades were pretty good and potential for increased yields was fairly large.

However, right now levels of output are fairly low and scientific farming levels are poor. With further improvements in responsibility systems, increase in the level of scientific care for wheat, and attention to implementation of conventional technical measures for tending wheat, a fairly great increase in yields can be obtained.

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CSO: 4007/390

# NEED FOR COLLECTIVE ACCUMULATION, WITHHOLDINGS STRESSED

Shijiazhuang HEBEI RIBAO in Chinese 14 Apr 82 p 1

[Article by Liang Yuncal [2733 0061 2088]: "Do a Good Job of Collective Withholdings for Expansion of Agricultural Reproduction"]

[Text] Recently we conducted a survey in some of the counties in the province on how to further improve and perfect agricultural production systems of responsibility. In the course of the survey, we discovered a general disregard for the role of production teams in the collective economy and a lack of attention to collective withholdings. For example, in some production teams practicing a responsibility system whereby peasant households assume full responsibility for task completion, collectively owned property had been divided up. In an overwhelming majority of production teams, when year end distributions were made little was withheld for the collective. No withholdings of public accumulations funds were made for expansion of reproduction and no public welfare funds were withheld for improvements and increases in worker cultural welfare facilities. This has seriously impaired the consolidation and development of the collective economy of people's communes, and hurt progress in expanding agricultural reproduction.

These problems have many causes, but the main one is that some rural cadres suppose that with the practice of a system whereby peasant households assume full responsibility for task completion, commune members can "continue to revolve by themselves without being greased," and that there is no longer anything for cadres to do. Consequently, they let go and do nothing further. Some of the masses suppose that following assumption by peasant households of full responsibility for task completion, it is a case of a blind man playing a violin, i.e., fending for oneself, and that production teams are no longer useful. These problems are largely a reflection of a small-scale agricultural economy mentality of self-sufficiency.

One has to fully understand that following the practice of responsibility systems whereby peasant households assumed full responsibility for task completion, production teams became a collective economic organization that continued to be responsible for organizing and managing production with authority to distribute the fruits of production, and that they are important integral parts of the collective economy of people's communes. Doing a good job of collective withholdings and strengthening and consolidating the

collective economy of people's communes is of extremely major significance for development of agricultural production and for the modernization of agriculture.

Objectively speaking, the responsibility system whereby peasant households assume full responsibility for task completion with workers carrying on small-scale decentralized operations is necessary for developing the level of productivity. However, its historical limitations should also be appreciated, and particularly that from a long-range point of view it restricts agricultural development to a certain extent. Consequently, in practicing agricultural responsibility systems, and particularly when production teams institute responsibility systems whereby peasant households assume full responsibility for task completion, the responsibility systems should function to consolidate the production teams' collective economy and to strengthen the collective economy.

Good performance in collective withholdings is a major way in which to consolidate and strengthen the socialist collective economy and to bring about expansion in agricultural reproduction. Collective withholdings are a part of the collective's centralized distributions. They are an important integral part of the correct handling of material benefit relationships among the state, the collective, and individual workers; they are a manifestation of workers' common benefits and long-range benefits; and they are a major source of funds for production teams' collective accumulations for the expansion of reproduction. Only when collective withholdings are properly handled can the collective economic forces steadily be consolidated and strengthened, and worker confidence in taking the collective road be strengthened.

There is no denying that responsibility systems have effectively solved the problem of "eating out of a large common pot," and have aroused the enthusiasm of workers. If along with the steady perfection and improvement of responsibility systems there is no increase in collective accumulations and no efforts to add new means of production or adopt and promote advanced techniques, the positive role of responsibility systems will gradually dissipate, and worker enthusiasm will also be impaired and limited, causing the pace of agricultural production to slacken. Therefore, in the development of agriculture, it is necessary to rely both on policies and on science. Reliance on policies stirs the enthusiasm of both the collective and in individual workers; reliance on science further emancipates and develops productivity. The widespread use of science and technology can promote tremendous development of productivity. In order to develop science and improve production capabilities, a certain amount of funds are required, and this requirement means steady accumulations.

In a system of responsibility whereby peasant households assume full responsibility for task completion, in order to get the workers to accumulate products surplus to their consumption requirements, collective withholdings are necessary. Only when a good job of collective withholdings is done can expansion of reproduction be assured.

A look at the substance of collective withholdings shows a five part content. First is the portion used to make up for the means of production that have been consumed. This is withheld in the form of depreciation allowances. Second is the additional part of accumulations needed to expand reproduction, which is withheld in the form of public accumulation funds and is the major source of funds for production teams to expand reproduction. The third portion is production expenses withheld to sustain reproduction in future years. The fourth portion is a reserve fund for use in meeting unfortunate accidents or natural disasters. The fifth portion is livelihood welfare funds and insurance funds established to satisfy the workers' common needs and for those who have lost their ability to work. This portion is withheld in the form of public welfare funds. The amount of each portion is decided on the basis of prevailing production team and worker financial strength and experiences over the years. We are against using a method whereby worker consumption is sacrificed without concern for objective realities to get social accumulations. We are also against concern only for present benefit and not caring about long-term benefits, dividing up until it is gone "rice for a meal and firwood for one cooking." There should be no small agricultural economy mentality of no collective accumulations.

Some people suppose that with the practice of a responsibility system whereby peasant households assume full responsibility for task completion and whereby individual households independently complete the entire production process from sowing to harvesting, there is no need for collective withholdings; withholdings can be the responsibility of individual commune member households and there is no need for production teams to handle them. They suppose that collective withholdings by production teams often set up a situation in which some cadres can eat more and take more. There is a certain amount of truth in such talk. In places in which cadre management levels are low, individuals do indeed eat more and take more, swallowing up collective property. However, this is not a shortcoming of the collective economy per se, but rather happens to be a manifestation of a lack of perfection in our collective economic system. We can solve it through democratic management of the economy and through democratic management of fiscal matters as well as through the country's laws. We positively cannot fear doing a thing because of possible problems, not making collective withholdings or operating a collective economy in consequence. We know that each individual household can indeed make accumulations. But the strength of individual households is puny, and both materials and financial resources are limited. No outstanding results can be obtained within a short period of time. But when the dispersed funds of a myriad of households are accumulated in a single place, within a short period of time, copious funds can be assembled. Therefore, not only can we not negate the collective economy or slight the role of the collective economy, but rather we should consolidate and strengthen the collective economy, do a good job of collective withholdings, enlarge collective accumulations, assure expansion of agricultural reproduction, and promote high speed development of agricultural production.



TIPS PROVIDED ON PROPER WHEAT FERTILIZATION

Shijiazhuang HEBEI RIBAO in Chinese 8 Apr 82 p 1

[Article by Liu Jinying [0491 6855 5391], Heli Commune, Wuqiang County:  
"Problems To Be Watched When Fertilizing Wheatfields"]

[Text] It is not a case of the more fertilization the better. In some places, once the wheat has greened up, large amounts of ammonium carbonate, urea, and such chemical fertilizers are applied at each state, several tens of jin or even more than 100 jin at a time, in the belief that the more the better. The result is a loss of capital without being able to increase yields, but rather causing the soil to become leathery, causing the wheat to remain in the vegetative stage and ripen late, and a decline in the per 1,000 weight of grains. Just what is the reason for this? Just how much fertilizer wheat needs in order to grow is a matter of what is a reasonable amount. Take wheatfields of moderate fertility, for example. The total amount of nitrogen (in terms of scalar quantity) used, including supplemental fertilization and topdressings before the onset of winter, should be no more than 20 jin per mu. About 35 jin of urea is also about right. Specifically in the course of spring care, when the wheat is watered for greening up, about 15 jin per mu of urea or about 40 jin of ammonium carbonate can be applied. When the wheat joints, between 7 and 10 jin per mu of urea can be applied. If ammonium carbonate is used, the amount should be 20-odd jin per mu. Consequently, top dressings of chemical fertilizers should be decided on the basis of the actual condition of the soil.

It is not the case that any way of fertilizing will do. One often sees just any kind of fertilizer being scattered on the ground by some commune members. This way of doing things saves work, but it does not produce the full effectiveness that the fertilizer should produce. Surveys and measurements have shown that if ammonium carbonate or ammonia water chemical fertilizers are put on the surface of the ground, as much as 20 percent or more of it may be volatilized. This artificially creates losses. Consequently, these kinds of chemical fertilizers have to be applied deeply into the soil. If the chemical fertilizer is put only 3 to 5 centimeters deep into the soil, it will be much more effective than if thrown on the surface of the ground.

It is not a matter of indiscriminate fertilizing with nitrogenous fertilizer. In some places, nitrogenous fertilizer is applied with no concern about the wheat's growing stage. This way of doing things frequently leads to the wheat continuing vegetative growth in its late stage, with late ripening and no increase in yields. Experience has shown generally that during the early stage of wheat growth, i.e., during the stages of wheat seedling growth before the onset of winter, during overwintering, when greening up, when beginning growth, and when jointing, the main line of attack should be toward nurture of sturdy seedlings, promotion of tillering, tiller formation, and spiking, and nitrogenous fertilizers such as urea or ammonium carbonate should be applied. But once the wheat has flowered and come into milk, the main line of attack should be directed toward formation of large heads and big grains. During this growth stage, heavy fertilization with phosphate should be done. This will not only increase the per 1,000 weight of grains and make the wheat grains plump, but it will also help the wheat resist lodging and hot dry winds.

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CSO: 4007/390

# POINTERS OFFERED ON MACHINE SOWING OF COTTON

Shijiazhuang HEBEI RIBAO in Chinese 9 Apr 82 p 2

[Article by Maintenance Department, Provincial Bureau of Farm Machinery:  
"Some Suggestions About Good Cotton Machine Sowing Techniques"]

[Text] The cotton sowing season will soon be here. Machine sowing makes for evenly spaced seedlings and quick sprouting, so the masses like it very much. Let me now make a few suggestions about techniques for doing a good job of machine sowing of cotton, for the reference of all jurisdictions.

1. Before sowing begins, cotton sowing machines should be completely repaired and maintained. It is particularly important that devices for furrowing and regulating planting depths meet agricultural needs. The depth of furrow made by the furrowing device should not exceed 5 centimeters or be any less than 3 centimeters. When the furrowing device is in the down position, the four furrowing parts should all be in the same horizontal plane, rather than some high and some low. When sowing to combat drought is to be done, a soil separating device may be mounted on the furrowing device.
2. Proper regulation of number of seeds sown. First the planter should be set and then readjusted during actual operation. No matter how it is adjusted, the speed at which the wheel revolves has to match the speed of motion of the tractor at the time of planting. When seeds have been treated, adjustments have to be done in accordance with the increase in seed weight following treatment. When sowing, consideration must be given to whether the tractor slides when in motion, and when setting the quantity of seeds to be sown, a 5 to 8 percent increase in amount should be made in accordance with circumstances. In order to avoid clogging when sowing, the cotton seeds should be picked over and all foreign materials removed so that the seeds will be sown smoothly.
3. When sowing, in addition to maintaining the machines as they should be maintained, mud that sticks fast to the drive wheel or roller should be removed at once. Tractor speed must be kept constant with no speeding up or slowing down. At a fast speed, fewer seeds are sown, and at a slow speed

more seeds are sown. Measurements show that 15.6 percent fewer seeds are sown in third gear than in second gear.

4. Field plots to be sown by machine should be nicely harrowed so that their surface is crumbly and they are firm underneath.

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CSO: 4007/390

HEBEI

BRIEFS

QUEZHOU COUNTY WHEAT--Shijiazhuang, 18 Jun (XINHUA)--Thanks to dissemination of scientific research results, both total output and per-mu yield on more than 300,000 mu of wheatfields in Quezhou County, Hebei, this year have increased by 20 percent over last year. The county has sunk nearly 1,000 wells, dug ditches with a total length of 400 km, leveled 120,000 mu of land and planted 3.7 million trees to harness 230,000 mu of saline-alkaline land in the northern part of the county. [OW180851 Beijing XINHUA Domestic Service in Chinese 0030 GMT 18 Jun 82]

CSO: 4007/447



## HEILONGJIANG

### BRIEFS

**GRASS BORER CONTROL**--According to Heilongjiang Ribao, since 5 June a large amount of grown grass borers have emerged in Harbin municipality and in Shuangcheng, Wuchang, Acheng, Fuyu, Bin, Anda, Qingan, Hailun and Suiling counties. According to an investigation on 6 June in suburban Harbin by the Provincial Plant Protection Department, there are 150 to 250 grown grass borers for each square meter of grassland near cultivated areas. Some 100 percent more than in 1980 when borer pests were serious. [passage omitted] The peak period for grass borers in our province is during the last 10 days of June. The Provincial Plant Protection Department has issued notices to various localities urging them to pay close attention to the growth of grass borers and take proper measures to control them. [Excerpts] [SK100409 Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 9 Jun 82]

CSO: 4007/453

SPRAYING WITH POTASSIUM DIHYDROGEN PHOSPHATE TO PREVENT HOT WIND DAMAGE REPORTED

Beijing RENMIN RIBAO in Chinese 24 Apr 82 p 2

[Article by Correspondents Wu Chengde [2976 2052 1795] and Wang Biao [3769 1753]: "How Does Henan Guard Against Hot Dry Winds?"]

[Text] Hot dry winds frequently seriously damage bumper harvests of wheat. In recent years, Henan has had outstanding success in guarding against damage from hot dry winds. Recently the correspondents visited the famed national wheat expert and deputy chairman of the Henan Provincial Agricultural Commission, Liu Yingxiang [0491 2019 4382], and asked him to talk about his experiences in guarding against hot dry winds.

Question: How has Henan guarded against hot dry winds in recent years?

Answer: Large scale protection against hot dry winds in Henan is something that has come about during the past 2 years. In 1980, 31 counties and municipalities in the province sprayed an 8 million mu area with potassium dihydrogen phosphate. Results were very good in most areas and yields increased in general more than 8 percent. This year the Henan Provincial Government is preparing to invest 1.7 million yuan for the spraying of 21 million mu.

Question: Does spraying with potassium dihydrogen phosphate increase production costs?

Answer: Experiments and demonstrations in Henan Province during the past 2 years show that spraying with potassium dihydrogen phosphate or petroleum growth booster takes about 3 liang per mu at a cost of 0.40 yuan. Airplane gas costs another 0.70 yuan, so the total cost is about 1.10 yuan per mu.

Question: At what time does spraying produce best results?

Answer: The right time for spraying potassium dihydrogen phosphate is from the jointing to the booting stage in wheat, the booting stage being the best time. The right time for spraying petroleum growth booster is from the spiking to the beginning of the in-the-milk stage for wheat.

Question: Can spraying be done by hand?

Answer: Yes; either by hand or with machines (such as a mister). Both achieve the same protective results. Aircraft spraying, hand spraying and machine spraying can all be used in combination. For hillsides and small patches of land, hand spraying is exceptionally convenient; for large wheatfield areas, aerial spraying has to be done in order to finish it quickly and at the right time.

Question: How many times should spraying be done?

Answer: Two years of experience in Henan showed more apparent results when spraying was done twice rather than once. Last year Changge County sprayed once with potassium dihydrogen phosphate when the wheat was jointing, and sprayed again with petroleum growth booster when it was in the milk. As a result, the per thousand weight of grains increased by 3.52 grams and yield increased by 49 jin per mu, 20 jin more than from a single spraying alone.

In intermediate and low yield wheat growing areas, the addition of 1 to 1.5 jin of urea per mu to the potassium dihydrogen phosphate at the time spraying is done can further increase yields per unit of area. A survey performed at six sites in Xihua County showed an average 12 percent yield increase when spraying was done with potassium dihydrogen phosphate and urea, but only a 6.3 percent yield increase when spraying was done with potassium dihydrogen phosphate alone.

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CSO: 4007/401

## BRIEFS

WHEAT HARVEST--Zhengzhou, 5 Jun (Xinhua)--Various places in the northern and central parts of Henan province suffered from serious droughts last winter and this spring. Non or low wheat-yielding areas have reached more than 13 million mu in the province as Xinxiang and Xuchang prefectures are still suffering from serious droughts. Through efforts made to combat droughts and improve scientific farming, medium or high wheat-yielding areas are expected to increase from the past 30 million mu to nearly 50 million mu. The province expects to reap a bumper harvest of wheat as the area planted to wheat has increased by 5 million mu. The per mu output is expected to exceed 600 jin in Shenqiu county and the total wheat output in Dengxian county, which has a total wheat-planted area of 1.5 million mu and whose total output increased by 120 million jin in 1981, is expected to increase wheat output by over 100 million jin this year. [Text] [OW061329 Beijing XINHUA Domestic Service in Chinese 0037 GMT 5 Jun 82 OW]

PIG, EGG PROCUREMENT--The Henan provincial government recently decided that, beginning from this year, the province must implement the policy on the assigned procurement of pigs and fresh eggs. The policy provides that the number of pigs and fresh eggs for assigned procurement, which has been fixed by all prefectures and municipalities, will remain unchanged for 3 years. The tasks of the assigned procurement and selling of pigs and fresh eggs to the state must be included in the state plan for agricultural production just as the tasks of the assigned procurement of grain, cotton and oil is included in the state plan for agricultural production. [Text] [OW061329 Zhengzhou Henan Provincial Service in Mandarin 1130 GMT 9 Jun 82 HK]

DENG COUNTY WHEAT PRODUCTION--Zhengzhou, 20 Jun (XINHUA)--Deng County, Henan, has continuously increased its wheat output by more than 100 million jin for 2 years running. This year, the county's total wheat output on its 1.5 million mu of wheat fields exceeded 600 million jin for the first time. In former years, the county's per-mu wheat yield was only about 200 jin. Last year, its per-mu wheat yield reached 317 jin, while total output was 475 million jin. This year's per-mu yield is around 400 jin. [OW211207 Beijing XINHUA Domestic Service in Chinese 0105 GMT 20 Jun 82]

CSO: 4007/447

## BRIEFS

NATURAL DISASTERS--From the end of April to the beginning of May, some 370 brigades in 59 communes in the 7 counties of Yongxing, Zixing, Guiyang, Leiyang, Jiahe, Rucheng and Yizhang, in Chenzhou prefecture were struck by torrential rain, hailstorms and strong winds, which caused serious difficulties for production and people's livelihood in the localities. After the natural disasters, leaders at all levels in the prefecture went into stricken areas to organize the masses to fight natural disasters and step up relief work. Chenzhou administrative commissioner's office appropriated 400,000 yuan from local finance as relief funds and 100,000 yuan as water conservation funds and supported victims with 600,000 jin of chemical fertilizers and agricultural chemicals and some 15 million jin of grain which was produced by these places and sold back by the state. Over the past few days, the prefecture has sent some 200,000 laborers every day to help with farming. Early and midseason rice on some 43,000 mu in Guiyang county was damaged and early and midseason rice on some 38,000 mu was recultivated. [Text]  
[Changsha Hunan Provincial Service in Mandarin 1100 GMT 20 May 82 HK]

CSO: 4007/453



## BRIEFS

TONGSHAN COUNTY HAILSTORM DAMAGE--At 6 pm on 10 June, a hailstorm hit 11 communes of Tongshan County, Jiangsu, damaging 68,000 mu of cotton, corn, potato and other field crops. Among these 35,000 mu of seedlings were completely wiped out. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 18 Jun 82]

SUINING COUNTY RAPESEED--Suining County, Jiangsu, reaped 45 million jin of rapeseed from its 220,000 mu of rapeseed fields. As of 10 June, the state had purchased and warehoused 10.75 million jin. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 17 Jun 82]

YANGZHOU PREFECTURE SUMMER GRAIN--By 15 June, the total amount of summer grain, including wheat and barley, put in storage in Yangzhou Prefecture, Jiangsu, increased by 59 percent over the corresponding period last year. The prefecture also saw an increase of total amount of rapeseed put in storage by 91 percent over the corresponding period of last year. The prefecture's total summer grain output this year increased by 15 percent over last year, an all-time high. [OW211213 Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 9 Jun 82]

CSO: 4007/447

JIANGXI

BRIEFS

PENGZE COUNTY COTTON MANAGEMENT--Pengze County, Jiangxi Province, has stepped up management of cottonfields. The county's 160,000 mu of cotton is growing very well. As of 31 May, weeding work had been carried out on 100,000 mu of cottonfields. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 11 Jun 82]

GAOAN COUNTY SPRING HARVEST--By 10 June Gaoan County had already purchased and placed in storage more than 5.7 million jin of spring grain, over-fulfilling this year's spring grain purchase plan by 14 percent. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 15 Jun 82]

CSO: 4007/447

## SIPING PREFECTURE COMBATS DROUGHT

SK080414 Changchun Jilin Provincial Service in Mandarin 2200 GMT 7 Jun 82

[Excerpts] According to our commentators (Peng Wangui and Zheng Xiemin), CCP committees and people's governments at all levels in Siping prefecture have actively led cadres and the masses to launch a struggle of combatting drought and ensuring the growth of crop seedlings. At present, except for some areas where crop seedlings have failed to sprout from the ground due to serious drought, 80 percent of all fields have a full stand of crop shoots. Transplanting of paddy seedlings has finished basically. All crop seeds sown before 28 May have become seedlings and those replanted in the late stage also began to come up.

Since the beginning of spring this year, most areas in Siping prefecture have experienced less rain than usual. Some communes and brigades have had no heavy rain for over 60 days and thus are suffering from a serious drought seldom seen for many years. Under such a situation, CCP committees and people's governments at all levels in Siping prefecture have actively led cadres and the masses to struggle against drought to ensure a good growth of crop seedlings instead of waiting for rain and being afraid of difficulties.

Principle leading comrades of the prefectural CCP committee and the prefectural administrative office as well as leading comrades of various municipalities and counties have personally gone down to communes and brigades stricken by serious drought to take the lead in antidrought work. Yitong, Huaide and Dongfeng counties and Liaoyuan municipality have transferred some 350 cadres from county-level organs to launch antidrought struggle in disaster communes and brigades. Now more than 200,000 people in the prefecture have plunged into antidrought work and replanting of crop seedlings. In the course of drought combatting, the prefectural CCP committee also educates cadres and the masses not to be disheartened because of the serious drought and to firmly foster the thinking of striving for a good harvest by combatting drought. [passage omitted]

The signs of drought continue to develop in Siping prefecture. However, the numerous cadres and masses are more enthusiastic in combatting drought to ensure the growth of crop seedlings. At the same time, they are taking precautions against the possible waterloggings in the late farming stage.

CSO: 4007/453

## BRIEFS

RICE REPLANTING--Taking advantage of timely rainfall from 30 May to 1 June, Dongfeng county of Jilin province organized all people including students to replant paddy rice seedlings. Some 97 percent of the paddy rice transplanting plan has been completed thanks to this crash program. [Text]  
[Changchun Jilin Provincial Service in Mandarin 2200 GMT 4 Jun 82 SK]

RICE TRANSPLANTING--Hailong county, whose rice acreage is relatively large in Jilin province, has summed up past lessons and basically completed rice seedling transplanting on over 300,000 mu of paddy fields in its 24 communes. [Text]  
[Changchun Jilin Provincial Service in Mandarin 1100 GMT 4 Jun 82 SK]

CHANGCHUN AREA DROUGHT--Commune members in Changchun area have seized the opportune time to replant crops on drought-stricken farmland. As of 24 May, some 37 communes and 1.46 million mu of farmland were hit by drought. To combat drought, the Changchun municipal CCP Committee recently held an emergency telephone conference to discuss measures to combat drought. [Text]  
[SK052214 Changchun Jilin Provincial Service in Mandarin 1100 GMT 4 Jun 82 SK]

PADDY TRANSPLANTING--Helong county, Jilin province, has basically finished paddy rice transplanting. As of 2 June, the county had transplanted 130,000 mu of paddyfields. [Text]  
[SK040735 Changchun Jilin Provincial Service in Mandarin 1100 GMT 3 Jun 82 SK]

CHANGCHUN SUBURBAN DROUGHT--Since a snowfall on 18 March, Changchun's suburban area has had no rain for 85 days. Two-thirds of the area's 131 reservoirs and ponds have dried up. The water level of potable water wells has dropped 1 meter. Over 20 production teams in the area have a drinking water problem. To combat drought, over 53,000 people, 2,500 animal-drawn vehicles and 600 motor-driven vehicles are out each day to deliver water and irrigate vegetable fields. As a result of commune members' efforts, some 109,500 mu of spring vegetables have been revived, and 26,780 mu of summer vegetable will survive. [Text]  
[SK140333 Changchun Jilin Provincial Service in Mandarin 1100 GMT 13 Jun 82 SK]

CSO: 4007/453

EXPERIMENTS IN DENSITY PLANTING OF CORN DESCRIBED

Changchun NONGCUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese No 1, 1982 p 20

[Article by Cong Wanda [0654 8001 6671] of the Nongan Science Committee: "Preliminary Report on the Experiments in Density and Structure of the Corn Colony"]

[Text] Different forms of planting require different planting densities. The same form of planting will produce greatly different yields if the planting density is different.

To understand the rational density and the structure of the colony of corn in conditions of small proportional interplanting, I conducted field experiments at the Third Production Team of Yumin Brigade, Xinyang Commune, in Nongan County in recent years. The variety of corn for testing was ji dan 101. The form of planting was 4.2 interplanting of corn and soybeans. The planting densities of corn were two plants every 2 chi, a single plant every 1 chi, two plants every 1 chi and a single plant every half chi. For the first two forms of planting, 3,000 seedlings were preserved per mu. For the last two forms of planting, 6,000 seedlings were preserved per mu.

Results of the experiments showed that in small proportional interplanting, the yield increased as the density increased in fields with 3,000 to 6,000 preserved seedlings per mu. Although the growth and development and the major economic characteristics of the single plants in the fields with 6,000 preserved seedlings per mu were poorer, because there were more spikes per unit area, "abundance won the victory." For example: The per-mu yield of fields of two plants planted every 1 chi was 1,248 jin, while the per-mu yield of fields of two plants planted every 2 chi was 983 jin. The former yielded 265 jin more per mu than the latter, or an increase of 26.9 percent in yield. The converse was true of the fields of single plants. As the density increased, the length of spikes, the number of grains per spike, the weight of hundred grains and the yield all showed a lessening trend. In the experiment, the per-mu yield all showed a lessening trend. In the experiment, the per-mu yield of the fields of single plants planted every 1 chi was 1,250 jin, while the yield of single plants planted every half chi was 1,012 jin. The former produced 238 jin per mu less than the latter in harvest, a reduction of 19.1 percent in yield. This was because the plants were too dense, the fields were overly closed, and aeration and light penetration were not good.



The experiments also showed that when the density was low, the yield of single plants was the highest. When the density was high, the yield of double plants was the highest. For example, in the experimental fields with 3,000 preserved seedlings, the fields with single plants planted every 1 chi produced 27.2 percent more in yield than the fields with double plants planted every 2 chi. In the fields with 6,000 preserved seedlings, fields with double plants planted every 1 chi produced 23.2 percent more in yield than the fields with single plants planted every half chi.

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CSO: 4007/267

## RESULTS OF SPARSE PLANTING OF SOYBEAN PLANTS DESCRIBED

Changchun NONGCUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese No 1, 1982 p 20

[Article by Zhang Guishan [1728 6311 1472] and Hu Jiahai [5170 0502 3189] of the Dunhua County Agricultural Bureau: "Equal Distance Sparse Planting of Single Soybean Plants Produces High Yields"]

[Text] The technicians of the General Dunhua County Agricultural Techniques Popularization Station and the experimental station of the county pedigree seed farm have conducted experiments in methods of soybean cultivation at the county's pedigree seed farm for 3 consecutive years. They summarized the experience of cultivating "high yields by planting single soybean plants at equal distances, sparsely." In 1981, the "sparse planting" technique was applied on 30 mu of demonstration fields. The average per-mu yield was 366.8 jin, an increase of 13.7 percent over "dense plantings." A new way to rationally plant soybeans densely by suiting measures to local circumstances has been found.

There was a saying in the past: "To obtain 4, 5 or 6 soybean plants, one has to sow 7, 8 or 9 seeds." This wasted a lot of soybean seeds. The farming technicians followed the long-standing advice of the farmers to "thin the side stems of soybeans and trim the wheat plants" and proposed "thin planting" of soybeans aimed at correcting the ever increasing dense planting of soybeans in production over the past years. This not only conserved seeds but it also increased yields. This experiment was started in 1979. The variety "dun liang No 3" which has relatively strong branching ability was selected and planted in relatively fertile soil. After 3 years of experiments, the growth of single plants was the best and the yield was the highest compared to planting of many plants and the planting of two plants per hole. The advantages of single plants included the following: 1) Seeds were conserved. About 100 jin of soybean seeds could be conserved per hectare, equivalent to a reduction of 34.50 yuan in production cost; 2) The "Thin planting method" improved the environment of cultivation. The single plants could fully absorb the nutrients in the soil and the individual plant was stimulated to produce more branches; 3) The structure of the colony, aeration and light penetration were improved and flowers and pods were protected. There were more beans, the beans were heavy and the yield was high. This technique is easy to carry out, it benefits field management and harvesting, and it can conserve labor. It requires careful

dibbling. Two seeds should be planted in one hole, and one plant should be kept to preserve the seedlings. The workers of this farm praised the "thin planting method" after evaluating it in 1981. In 1982, they plan to popularize it over more than 200 mu, constituting half the area of soybeans of the whole farm.

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CS0: 4007/267

## BRIEFS

FRESH WATER FISHERY PLAN--The Liaoning provincial people's government recently sponsored a work conference on fresh-water fisheries. After discussions, the conference approved a resolution on the provincial goal of developing fresh-water fisheries. The plan discloses that by the end of 1985, the province will build 50,000 mu of up-to-standard fishing ponds and 20 large and medium-sized reservoirs which may provide 300,000 mu of fishing farms. The province will score a 100 percent increase in fresh-water fishing output. According to statistics, the 1981 per capita fresh-water fish consumption in our country was 2 jin 9 liang. Per capita consumption in our province was only 6 liangs. [Text] [SK040737 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 2 Jun 82 SK]

CSO: 4007/453

QINGHAI

SNOWSTORM STRICKEN AREAS RETURN TO NORMAL

SK090851 Xining Qinghai Provincial Service in Mandarin 2330 GMT 8 Jun 82

[Text] The herdsmen of various nationalities in our province's snowstorm-stricken pastoral areas, after 2 months' hard work, have achieved good results in combatting disaster to protect livestock. Since the weather in these areas is getting warm at present, the grass has begun to turn green and the loss of animals has basically stopped.

According to incomplete statistics released in early June, 884,000 animals of all kinds died in the pastoral areas' six autonomous prefectures, 4.7 percent of the total number. This is less than what was expected by departments concerned.

Since the 1970's, pastoral areas in our province have experienced two heavy snowstorms. One occurred in 1975 and the other this year. Comparing the two, this year's snowstorm covered a longer area and lasted a longer period, but the loss was less than that in 1975. This year, the loss of full-grown animals equaled two-thirds of that in 1975.

The broad masses of herdsmen are now taking this opportune time to step up management in grazing and feeding in the summer season in order to enable livestock to regain weight as soon as possible.

CSO: 4007/453



## SHAANXI

### BRIEFS

PROVINCIAL SUMMER GRAIN--Xian, 18 Jun (XINHUA)--Hanzhong and Ankang prefectures in Shaanxi, both of which suffered from serious flood and waterlogging last year, have reaped a bumper harvest of summer grain this year. Total output of Hanzhong Prefecture's 2.22 million mu is estimated to exceed 540 million jin. Total output on Ankang Prefecture's 2.7 million mu is also expected to exceed 500 million jin. [Beijing XINHUA Domestic Service in Chinese 0038 GMT 18 Jun 82]

CSO: 4007/447

## SOME POINTERS GIVEN ON THE GROWING OF LUMIAN NO 1 COTTON

Taiyuan SHANXI NONGMIN BAO in Chinese 10 Apr 82 p 1

[Article by Ge Wenzhe [7041 2429 3419]: "Lumian No 1 Culturing Techniques"]

[Text] Lumian No 1 fine variety cotton was propagated by irradiation in 1971 by the Shandong Provincial Cotton Institute. It is characterized by compact plants, strong boll formation, a low drop off rate, early ripening, much cotton before the arrival of frost, wide adaptability, and strong resistance. In 1980 places all over the province began to introduce it to cultivation, and increased yields over wide areas were remarkable. However, because a small number of places did not understand the special properties and characteristics of fine varieties, the culturing methods they used were not right. As a result, increases in yields were not remarkable, or else only ordinary yields resulted. In order to make the most of the potential of fine varieties for increased yields, the following problems must be given attention in the process of promoting their cultivation.

Seed selection and seed treatment. About half a month before sowing, sunning of the seeds should begin. Before sunning, small half-filled seeds, broken seeds, fuzzless seeds, green seeds, seeds eaten by insects, seeds with little hair, large white seeds, and seeds that are not the same in size or appearance as the original ones should be picked out. Grains of the same size, color and shape should be chosen as seeds. Around noontime when the sun is strongest the seeds should be laid out on flat ground or on a mat for sunning and sunned for 4 to 5 days, until they crack when bitten between the teeth. One day before they are planted, the seeds should be soaked in water and a chemical solution to prevent diseases and to promote germination. The method of treatment is to use three parts boiling water to one part cold water or two parts boiling water to one part cold water to make warm water. The volume of water should be twice the volume of the seeds. The cotton seeds should be soaked in this for 13 minutes, after which they should be put into cold water. After soaking until the skin of the cotton seeds has softened and the cotyledon delaminates, they should be scooped out and piled up to let the action continue, being covered with burlap bags or straw. Usually the action need continue only for 8 to 12 hours.

Sowing the seeds. Lumian No 1 is an early maturing variety, which may be planted when soil temperature below one and one-half cun reaches about 15

degrees. This is around 20 April (in Yuncheng and Jinzhong prefectures). In saline, alkaline, and wet fields, sowing may be delayed until the end of April. Inasmuch as plant shapes of this variety are relatively compact, this variety can be planted somewhat more closely together than local varieties, but not too close together. On well manured and watered ground, they may be planted a little closer; on dry and not so fertile ground, they should be planted somewhat less closely. The specific distances between rows should be worked out in a flexible way on the basis of the average distance between rows, how well fields are cared for, and local custom. Generally an average distance between rows of less than 2 chi 3 cun and more than 1 chi 8 cun is about right. When the average distance between rows is about 2 chi, large and small rows may be planted, a difference of 7 to 8 cun between large and small rows being about right.

Field care. Lumian No 1 cotton tolerates fertilizer and water, has a strong boll forming characteristics, has a short boll forming period, grows weakly during the late stage and is prone to early deterioration. In tending it, special attention must be given to the following. 1) In view of its sensitivity to water and fertilizer, it must be watered at three different times, namely watering to make the soil moist before sowing, watering during the squaring stage to promote plant growth, and watering during mid or late August for boll formation. 2) For yields of 100 jin per mu of ginned cotton, between 4,000 and 5,000 jin of mud fertilizer (base fertilizer) will be required, plus between 30 and 40 jin of ammonium sulfate (as a top dressing). One-third of the chemical fertilizer used as a top dressing is to be given during the squaring period, the other two-thirds being applied during flowering. In order to prevent premature plant deterioration, between 30 and 50 jin per mu of calcium superphosphate should be applied before sowing, and spraying done during flowering with a 2 percent concentration of calcium superphosphate extract, or a 300 to 500 part potassium dihydrogen phosphate solution. 3) Lumian No 1 cotton has few branches that do not bear cotton, and bolls are numerous in the mid and lower parts of plants. Not too many cotton bearing branches should be kept, and topping should be done early on. Generally for cotton fields that produce about 100 jin per mu, about 40,000 branches per mu should be retained. During the late season, old leaves should not be removed.

## 1981 PER-CAPITA INCOME FOR PEASANTS REGISTERS INCREASE

Taiyuan SHANXI RIBAO in Chinese 3 Apr 82 p 2

[Article by Zhang Zhiyu [1728 0037 1946]: "Shanxi Province Reports 1981 Rural Area Distributed Income"]

[Text] According to recently tabulated information, last year there were 22 counties (districts or municipalities) in Shanxi Province in which the per-capita income distributed by collectives exceeded 100 yuan. Nanjiao District of Datong Municipality claimed the highest per-capita income, 211.6 yuan, while residents in Nanjiao District of Taiyuan Municipality and on the outskirts of Yangqu Municipality claimed a per-capita income of a little over 200 yuan. There were 53 communes, or 11 more than in 1980, which claimed a per-capita income of over 200 yuan, and 314 brigades, or 110 more than in 1980, in which the per-capita income exceeded 300 yuan. Two brigades, Dalupo and Shangzhangjiawen had the highest per-capita income of over 1,000 yuan. Shangzhangjiawen had the highest per-capita income, 1,208.3 yuan. Long poverty-stricken Baode County registered an increase of 50.7 and 39 percent respectively in the gross output of food grains and income the levels of 1980, despite natural disasters. In 1981, each person in Xingxian County received 508 jin of food grains from collectives, the highest ever in the province. In 1978, there were only 91 economic accounting units in Jinzhong Prefecture with per-capita income exceeding 150 yuan. But in 1981, the prefecture had 1,328 such units or 13.5 times greater.

Last year, the grassroots economic accounting units throughout the province spent a total of 1,088,210,000 billion yuan in outlay on various operations, down 11.5 percent from the level of 1980, which means an additional income of 7 yuan per person in the province's rural population. In 1980, the economic return on each 100 yuan invested by communes and brigades was 270 yuan. In 1981, this economic return increased by 14.6 yuan to 284.6 yuan. In 1980, the economic return on each 100 yuan invested by Luliang Prefecture were 258 yuan. In 1981, this economic return increased by 25 yuan to 283 yuan.

This increased production and reduced expenditure have brought additional income to the state. Last year, rural Shanxi delivered 130.88 million yuan in taxes to the state, up 12.1 percent from the level of the previous year, which meant an additional per-capita contribution of 0.69 yuan to the revenue. Last Year, the province sold and delivered to the state a total of 1,756,000,000 billion jin of food grains, which represented an increase of 37.94 million jin or 2.2 percent over the level of the previous year.

## NEW COTTON VARIETY GIVEN HIGH MARKS

Taiyuan SHANXI NONGMIN BAO in Chinese 10 Apr 82 p 1

[Article by Hao Tyolan [6787 7474 5695] station advisor: "New Cotton Variety, Jinmian No 5"]

[Text] New cotton variety Jinmian No 5 was systematically bred from 68-148 cotton variety by the economic Crop Institute (located at Nanhuan in Fenyang County) of the Shanxi Academy of Agricultural Sciences. This variety's output is relatively high and relatively consistent. During the 3-year period from 1979 to 1981, regional experiments conducted by 23 communes and brigades produced yields of ginned cotton averaging 125.2 jin per mu, a 10.3 percent greater yield than that from control variety Heishanmian No 1. Unginned cotton yields were 8.9 percent greater than from the control variety, and cotton yields before frost were 14.6 percent greater. Production demonstrations over the 3-year period brought yields averaging 158.9 jin per mu of ginned cotton. As compared with the variety promoted, this was a 20.7 jin yield increase, and 21.2 percent more cotton before frost. The principal characteristics of the new Jinmian No 5 variety are: greater and consistent yields, early ripening with large bolls, fairly high ginning outturn, fairly long fibers, ability to withstand yellow dwarfing and wilting, and fairly strong adaptability. Seven consecutive years of testing and demonstrations have shown an average 14.6 percent increase in ginned cotton output with individual bolls weighing 4.4 and 5.4 grams. The ginning outturn rate was from 38.1 to 39.7 percent, and fiber length measured 28.1 millimeters.

Growing of Jinmian No 5 new variety requires sufficient basic fertilization, proper close planting, prompt topping, a seedling density of between 8,000 and 10,000 plants per mu, and each plant retaining 6 or 7 cotton producing branches. In the overall field care process, early and deep cultivating must be done during the [squaring] stage to strengthen seedlings so as to derive fullest potential for a bumper harvest of large and numerous cotton bolls. During the late stage, early deterioration of plants is to be guarded against.

New variety Jinmian No 5 takes 148 days from sowing until boll opening. Its growing season is comparatively short, and its yields have been shown to be comparatively good, making it suitable for extension to cultivation in wetland and flatland drylands in the particularly early ripening cotton growing areas of Jinzhong Luliang and Taiyuan in Shanxi Province.

MEASURES TAKEN TO INCREASE COTTON PRODUCTION DESCRIBED

Yuncheng Prefecture Efforts

Taiyuan SHANXI RIBAO in Chinese 18 Mar 82 p 1

[Article by SHANXI RIBAO correspondent: "Yuncheng, Linfen Prefectures Popularize Shandong's Cotton Production Experiences"]

[Text] Since the beginning of this year, Yuncheng Prefecture has displayed determination to fight a battle in order to double its cotton output, and has adopted five specific measures for this purpose.

1. It is necessary to implement policy. Since the Shanxi Provincial Cotton Production Conference, the Yuncheng prefectural party committee and various counties under Yuncheng Prefecture have promptly sent personnel to basic levels so that they can convey policy approved by the party Central Committee and the Shanxi provincial party committee on cotton production to peasant households for implementation. Some 100,000 copies of the document on the minutes of the Shanxi Provincial Cotton Production Conference have been printed by the Yuncheng prefectural party committee for distribution to the grassroots units so that the nine policy decisions by the Shanxi provincial party committee on the development of cotton production can be quickly made known to the cotton peasants. This action has proved instrumental in boosting the morale of the peasants for cotton production this year.

2. It is necessary to implement the plans. This year, the target set by the state for Yuncheng Prefecture is to grow cotton on 2 million mu of land. As a result of repeated efforts, the prefecture has achieved success in planting cotton on 2.161 million mu of winter fallow land and of multiple cropping land, or 161,000 mu more than planned by the state, thus smashing the record of any previous year since 1958.

3. It is necessary to strengthen leadership. In order to strengthen leadership over cotton production, principal leading cadres from prefectural to county levels have begun to assume a direct role in cotton production. The prefecture now has 195 cotton-growing communes whose deputy secretaries or vice chairmen have taken the initiative to include technicians on the staff of commune-operated agricultural techniques promotion stations and to have skilled cotton growers employed by production teams join the leading groups concerned with cotton production.



4. It is necessary to apply technology. Yuncheng Prefecture and various counties have formed their respective cotton cultivation technical advisory groups (composed of leading cadres, scientific and technical personnel, and model cotton cultivators) with the aim of combining the application of traditional cotton cultivation experiences and modern science and technology in cotton production. Since their establishment the cotton cultivation advisory groups have started a technical training program. So far, the 13 training classes held by the prefectural advisory group in various counties have graduated some 2,500 students, including county and commune level leading cadres and technicians on the staff of commune-operated agricultural stations. The prefecture plans to train a total of 300,000 technicians, or one for every two households on the average.

5. It is necessary to make farming preparation. The prefecture now has 1.93 million mu of winter fallow land planted with cotton. Of this figure, some 820,000 mu of land have been set aside as cotton land to be irrigated. Since the beginning of this spring, some 320,000 mu, or 40 percent of the total, have received irrigation waters. Meanwhile, some 7 million carts of farm manure have been collected and prepared for use. This amount of manure is sufficient to provide each mu of land with 3 and 1/2 carts of manure. For the time being, some 60 percent of this amount of manure has been made available to cotton fields; cotton fields throughout the prefecture have been harrowed twice; 1.1 million mu of furrowed cotton land or 57 percent of the total have been levelled. Some 37 million jin of cottonseeds--averaging 19 jin per mu of land--have been readied for distribution, while 266,000 mu of cotton land have been covered by plastic sheets.

At present, active preparations are being made by the vast numbers of cotton peasants to dry up cottonseeds, to deliver manure to fields, and to exchange their cotton-growing technical information in the determination to insure that cotton crops will be grown to capacity and well.

#### Cotton Production in Linfen

Faivuan SHANXI RIBAO in Chinese 18 Mar 82 p 1

[Article by Ru Lan [1172 3482], Yong Jiang [3057 3068], Feng Ming [7685 7686] and Song Yue [2837 6460]: "Linfen Prefecture Promotes Shandong's Cotton Growing Experiences"]

In the course of actively studying Shandong's experiences in cotton production, cotton peasants throughout Linfen Prefecture have summed up their own experiences and lessons and displayed determination to save the "bolls" from falling off the plants."

Linfen Prefecture is known for its mild climate, plentiful sunlight, and fertile soil. Historically, it once led other prefectures in north China in cotton production. But over the past 10 years, its gross cotton output has declined to 80 million jin a year, while in 1981 its per-mu output of cotton was at the lowest level for the third consecutive year. In order to reverse this trend, early this year Linfen Prefecture held a discussion meeting with "cotton experts" and technicians sent by the Shanxi Provin-

cial Wheat Research Institute. During the meeting, experiences and lessons centering on the cause of cotton bolls falling off the plants were realistically and conscientiously summed up, and measures for increased cotton production were studied. Later, the prefecture held another meeting attended by responsible comrades of 11 cotton-growing counties and municipalities in charge of cotton production, including deputy secretaries of county party committees, deputy heads of county governments, directors of the departments of industry and agriculture, and responsible persons of bureaus of food and of agriculture, supply and marketing cooperatives, and cotton and hemp companies. The aim of the meeting was to study Shandong's experiences in increasing cotton production despite natural disasters, to discuss specific measures aimed at increasing cotton production this year, and to adopt a resolution calling for following the example of Shandong in scoring a breakthrough in cotton production. To this end, Linfen Prefecture and counties under this prefecture have spent time, before the beginning of this busy spring farming season, conveying policies of various incentives to various communes, brigades, groups, and households of commune members, and extending to them advance pay. Active efforts are also being made to select superior cotton varieties, to improve cultivation techniques, to spread fertilizer in scientific ways, and to promote strong but low-toxic insecticides.

9574

CSO: 4007/376

MOVES TO INCREASE BREEDING HOGS, MEAT PRODUCTION REPORTED

Haiyuan SHANXI RIBAO in Chinese 16 Mar 82 p 2

[Article by Guo Ce [6753 4595], Gao Yongrui [7559 0516 6904], and Sun Yong [1327 0516]: "The Raising of Sows Should Be Encouraged in Many Ways"]

[Text] The decline in the output of live hogs is a matter of great economic concern that deserves our great attention and conscientious efforts to seek a solution to this problem. Bearing this problem in mind, we recently went to interview the departments concerned and the masses of peasants in Yanbei Prefecture. Their consensus is that this decline in the output of hogs can be reversed only by taking an important step to raise more sows. Yanbei Prefecture now has 359,000 hogs in stock, down 11 percent from the level of the corresponding period of 1980. Particularly noteworthy is the fact that there are now only a little over 22,000 sows in the stock of Yanbei Prefecture, or more than 39 percent less than the level of the corresponding period of 1980. Calculating on the basis that each sow can breed 10 piglets, as indicated by the current trend of development, the existing number of sows can produce only 220,000 piglets. Added to the number of hogs now in stock, the total number of hogs to be raised this year will not exceed 580,000, down 80,000 to 90,000 from the previous year's level of 660,000.

What has caused the output of hogs to drop? The main reasons are:

1. The masses are bound to suffer great losses from selling their hogs in stock whenever supply of hogs exceed demand. This has prompted them to say: "From now on, we will never try to raise hogs again."
2. When the dry spell was prolonged during last summer, the masses became panic-stricken because they could not sell their piglets. Consequently, they had to slaughter sows without authorization. The result was a 50-percent decline in the number of sows in Guangling, Hunyuan, Yingxian, Datong, and Huairan Counties in the short period of June and July 1981.
3. Since the implementation of the production responsibility system, the old policy of allowing peasants to retain a portion of their farmland as feed growing plots and part of their harvest for feed has been declared null and void by some localities. Thus, there is no distinction between those who merit commendation for raising hogs and those who deserve punishment for declining

to raise hogs, and between those who merit commendation for raising more hogs than others and those who should be scolded for raising less hogs than others. The result was a decline in the sales of piglets and a gradual reduction in the number of hogs in stock during the second half of 1981.

4. The leadership in some localities has ignored the need to raise hogs on the assumption that in the absence of government intervention, meat will still be available everywhere.

Then what steps should be taken to solve the problems caused by a lack of interest in raising hogs, and what ways should be devised to encourage people to raise sows and to promote the large-scale development of hogs?

First, we must attach importance to the raising of hogs from the ideological point of view. In addition to actively encouraging full-time breeders to raise sows, we must call on financially sound communes and brigades to raise more sows and to operate collectively owned pigpens. In order to reverse the downward trend of raising hogs, the administrative office of Yanbei Prefecture has granted 200,000 yuan in assistance to those counties, communes and brigades which are in need of sows. The rule is that anyone who raises one sow will receive 10 yuan in subsidies, and anyone who raises one boar will receive subsidies in the amount of 30 yuan. Contracts to this effect will be signed and carried out by parties concerned.

Second, the policy of awarding prizes to the sellers of piglets, the pricing policy, and the policy of allowing peasants to retain part of their harvests as feed should continue in force; no reckless attempts should be made to change the specific regulations that have been proved effective in raising hogs by various localities. In an effort to stimulate the enthusiasm of the masses for raising hogs, the Yanbei prefectural party committee has allowed each commune member to retain 15 percent of the farmland assigned to him as his private plot, and 5 percent of this plot as land to be planted with feed crops. This privilege will be forfeited if he declines to raise hogs. The policy that entitles each breeder to receive 500 jin of feed for raising one boar, 360 jin of feed for raising one sow, and 60 jin of feed for raising one meat hog--a policy that has been enforced by some localities--should also continue in force. No reckless attempts should be made to change them.

Third, plans must be worked out to protect and develop boars and sows. The ratio of breeding sows to hogs in stock should be maintained at 1 to 10, and the ratio of sows to boars should be maintained at 20 or 25 to 1 in order to insure the normal development of the hog-raising enterprise. In an effort to speed up the development of breeding hogs, Datong County has adopted a measure to entitle each breeder to receiving 30 yuan in subsidies for raising one boar or sow, 1 to 3 yuan for raising one piglet born of a sow in his stock. These subsidies will be provided by production teams. All sows and boars in the stock of Datong County are inspected once every year so that those capable of breeding piglets can be attained and those incapable of breeding piglets can be slaughtered.

## MEASURES TO CLEAR ICE CLOGGING IN YELLOW RIVER DESCRIBED

Taiyuan SHANXI RIBAO in Chinese 23 Mar 82 p 1, 4

[Article by the ice clogs clearance command of Hequ section of the Yellow River in Shanxi Province: "Groundwork Has Been Laid for Clearing Up Ice Clogging in the Yellow River"]

[Text] In a spirit of unity, army men and civilians have been working hard to complete the basic phase of a project aimed at clearing up ice clogs in the Yellow River. They are now in a state of strict combat-readiness, preparing to take all necessary emergency measures to cope with the situation that may be caused by a cascade of icy waters.

Since last December, heavy ice clogs have appeared in the main waterway of the Yellow River, causing the icy water levels to rise to a point unprecedented in history. The cascade of icy waters has inflicted serious damage on Hequ County in this province and Jungar Banner in Nei Monggol during its movement down the Yellow River past their banks. The party and government have expressed grave concern for the safety of lives and property of the masses of people in the afflicted area. Following an inspection of the area, officials sent by the Central Committee departments concerned have directed three nearby provinces--Shanxi, Shaanxi and Nei Monggol--to set up a joint ice clogs control command. The Shanxi provincial party committee and the provincial government have organized and rushed forces to Hequ County in order to get the ice clogs clearance and rescue and relief work underway.

The first phase of the emergency rescue operation set by the three-province joint ice clogs control command includes controlling waters used by the Houjiakou Hydroelectric Power Station on the upper stream, releasing waters through the sluices of the Tianqiao Hydroelectric Power Station on the lower stream of the river, and blasting a passageway through the heavily ice clogged main waterway of the Hequ section of the Yellow River. On 21 February, a certain PLA engineering company stationed in Shanxi was ordered to move into Hequ, and supported by the local militia units, it has spent the past half-month blasting a water drainage passageway, 30 to 35 meters wide and over 1,400 meters long, through the heavily ice clogged main waterway of the Hequ section of the Yellow River. On 12 March, it completed two gap-closing projects, one in Houjiakou and the other in Xujiakou. From 15 to 16 March, a vast army of 2,000 rescue workers rushed against time to complete the construction of an

engineering project aimed at protecting a bay area and three parallel dikes totalling 2.411 meters long, thus bringing the first phase of the ice clogs control and rescue operation to a successful conclusion.

Later, the command held a meeting to work out the second phase of the rescue operation, including the dispatch of a certain air force unit and two PLA artillery companies stationed in Shanxi into the area in support of the operation. From 14 to 16 March, five sorties were flown by aircraft to drop 1 ton of bombs into the ice clogs. From 15 to 17 March, test shots fired by the artillery companies from Changsha Beach all hit the proposed targets with pinpoint accuracy. At the same time, the PLA engineering corps company also claimed success in blasting a way out of the ice clogs with missiles. Two huge generators owned by the Shanxi Provincial Bureau of Water Conservancy and some searchlights in the possession of a certain air force unit have been moved into the area, thus setting the stage for combatting the cascade of icy waters to be triggered by the blasts. During the period of ice clogs clearance and rescue operation, the command tightened up its security measures by organizing the masses to evacuate temporarily from the dangerous area, while concentrating on sowing spring wheat in the area afflicted by this disaster.

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## SICHUAN COTTON AREA CUT IN HALF; YIELD INCREASES URGED

Chengdu SICHUAN RIBAO in Chinese 12 Mar 82 p 1

[Article by Commentator: "Strive to Increase Cotton Yield Per Unit Area"]

[Text] Strive to raise cotton yields per unit area and do all that is possible to break previous records. This is a glorious task facing the cotton-growing peasantry of all Sichuan now that the area devoted to cotton has been readjusted.

It is entirely possible to surpass the previous record of single-crop cotton output in Sichuan. This year the province's cotton area was reduced from 3.86 million mu to 1.8 million mu and the number of cotton-growing counties have fallen from 34 to 20. These 20 cotton-growing counties are the key growing areas most suited to cotton production. Historically, single-crop cotton output in most of these counties has reached or exceeded 100 jin per mu. Their cadres and masses have experience in obtaining high yields and using scientific techniques in cotton growing. Both natural conditions and technical experiences in these counties are advantageous to achieving high cotton yields. In addition, the province's readjustment of its economic policy on cotton planting this year will certainly further arouse the enthusiasm of the cotton growers. The current economic policy on cotton growing has paid even greater attention than in the past to the interest of the cotton growers, making cotton more profitable to them. For instance, 100 jin per mu of ginned cotton can yield a cash income of about 200 yuan, plus an award sales of over 200 jin each of grain and chemical fertilizer. This policy promotes cotton production. We should also note that the farming activities involved in cotton production are varied and complex, and are highly technical. Each production measure requires a high sense of responsibility on the part of the commune members. With the gradual perfection of the unions forms or the production responsibility system and the carrying out of responsibility systems linking technology to output, the sense of responsibility of the cotton growing peasants and technical personnel to do well in production has risen greatly. This has helped strengthen cotton field management and enabled effective measures purported for improving cotton yields and quality to be actually implemented. The role of science and technology has been brought into full play in increasing yields. We should analyze the conditions of cotton production in a correct manner and take full cognizance of beneficial aspects while at the same time making an adequate appraisal of the threat of natural disasters and of practical problems existing in our work. Based on this knowledge, we should wrest bumper harvests from the jaws of natural disaster, promote beneficial conditions, overcome unfavorable elements and try in every way possible to boost our province's cotton production.

At present, we must seriously publicize the economic policies for planting cotton, thoroughly arouse the enthusiasm of the masses for planting cotton and, under the direction of the state plan, rapidly carry out the post-readjustment cotton field planting plans and grow good, healthy cotton. We must further stabilize and perfect the various forms of responsibility system which are suited to cotton production. Production responsibility systems are the reliable guarantees that will raise the commune members' sense of responsibility and consciousness to do a good job of growing cotton. Effective cotton production responsibility systems at present, all premised on the unified management by the production brigade, are all carried out in the forms of fixing output quotas based on work teams, specialized task teams, individual laborers or households, or the large-scale assignment of responsibilities. The essence of these systems is to take the collective ownership of land and other principal means of production as basis and carry out collective distribution of within-output quota items while leaving anything outside or beyond the quota as commune member income. This kind of production responsibility system, which simultaneously looks out for the interests of the state, the collective and the individual, corresponds to the present level of development of productive forces in the rural areas and is beneficial to the development of cotton production. Based on the wishes of the commune members, the various localities must help the communes and brigades rapidly to implement different forms of production responsibility systems according to differing production conditions and, in the course of practice, to perfect them gradually. No matter which system is adopted, it should take into consideration the characteristics of cotton, that its production is technically sophisticated, it is prone to disease and insects and its seed production is relatively complex. The system should therefore keep under unified control that which is suited to unified control and contract out whatever is appropriate. Work such as breeding seeds through hybrid cotton and controlling disease and pests must continue to be done by means of specialized contracts so as to keep these endeavors under unified control. In some communes and brigades where the area devoted to cotton growing is small and where cotton planting techniques have not been popularized, we must continue to avoid contracting cotton responsibility land to commune members who do not have the knowhow, and carry out unified management and specialized contracting. This will be more beneficial to developing cotton production.

After the problem of the relevant economic policies has been basically solved and the enthusiasm of the cotton growers whipped up, we should make the popularization of scientific cotton growing techniques an important item on our daily agenda. We must help the commune members to grasp and utilize conventional cotton growing techniques. These techniques are the basis for achieving high cotton output. If they are mastered and put into practice, it is possible to have a cotton yield of 100 jin per mu. This has been proven by many years of scientific experiment and production experience. Within a county, no matter what kind of year it is, there is always a group of communes and brigades or plots where the yield of ginned cotton exceeds 100 jin per mu. Furthermore, the vast majority of the existing cotton growing communes and brigades have all had yields equal to or exceeding 100 jin per mu at one time or another. We could say that the techniques for producing 100 jin per mu of cotton are well developed in our province. The key is to correctly grasp and apply these experiences, so that they can be implemented. It is the responsibility of the agricultural departments to adopt various measures to rapidly spread conventional cotton-growing technology to all the households.

We must continue to carry out responsibility systems linking output to techniques and increase the high-yield demonstrations. Last year, some science and technology units and agricultural administrative departments signed contracts linking output to cotton-producing techniques with the communes and brigades and achieved quite good results in developing technical services. The agricultural departments of each cotton-producing district must further organize its forces and, in close cooperation with relevant scientific committees and science associations, promote responsibility systems linking output to techniques. To provide technical services through contracts, and to combine the efforts of linking output to techniques and high-yield demonstrations, plays a role in promoting large-area productions.

Cotton production is a weak link in Sichuan's agricultural production. In the last 3 years in particular, cotton output has declined continuously and the contradiction between supply and demand has become rather pronounced, affecting not only military needs and civilian uses but also the economic income of the state, collective and individuals. The leaders at various levels in the cotton districts definitely cannot consider that since the area of cotton fields has been reduced, their burden has been lightened, so that they can relax their leadership. Quite the contrary, they must exert the utmost resolve and make maximum efforts to raise single-crop cotton yields. Leading comrades at the prefectural and county levels in the cotton-producing districts must divide up the labor for cotton production. The expertise of the scientists, technicians and popularization personnel who are engaged in cotton production should be brought into full play. We must strive to raise the scientific level of growing cotton in order to promote the continuous increase in single-crop cotton yields.

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ZHEJIANG

BRIEFS

LISHUI COUNTY EARLY RICE--Lishui County, Zhejiang, reaped 4.5 million jin of spring rice this year thanks to the rational application of various indigenous ash clay fertilizers and manures. [Hangzhou Zhejiang Provincial Service in Mandarin 1030 GMT 17 Jun 82]

TEA PURCHASE--As of 15 May, supply and marketing cooperatives in various parts of Zhejiang province had purchased a total of some 770,000 dan of spring tea, or some 83,000 dan more than by the same time last year. This amount already exceeds the present target by 2 percent. [Text] [Hangzhou Zhejiang Ribao in Chinese 20 May 82 p 1 OW]

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*July 9, 1982*

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